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DISEASES *of the* NERVOUS SYSTEM

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DISEASES *of the* Nervous System

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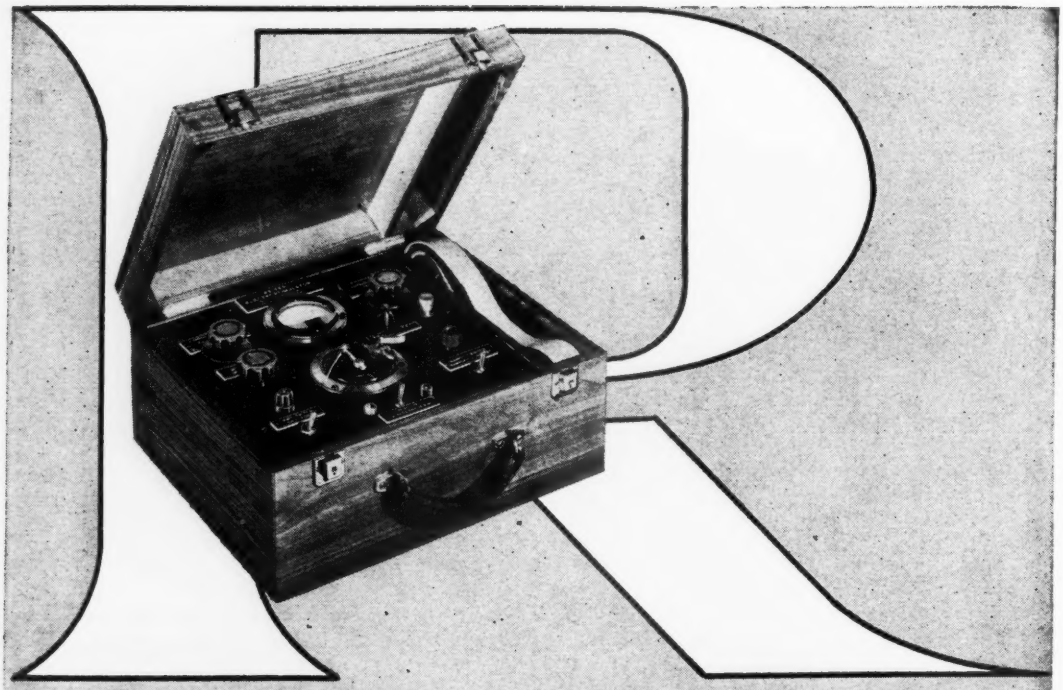

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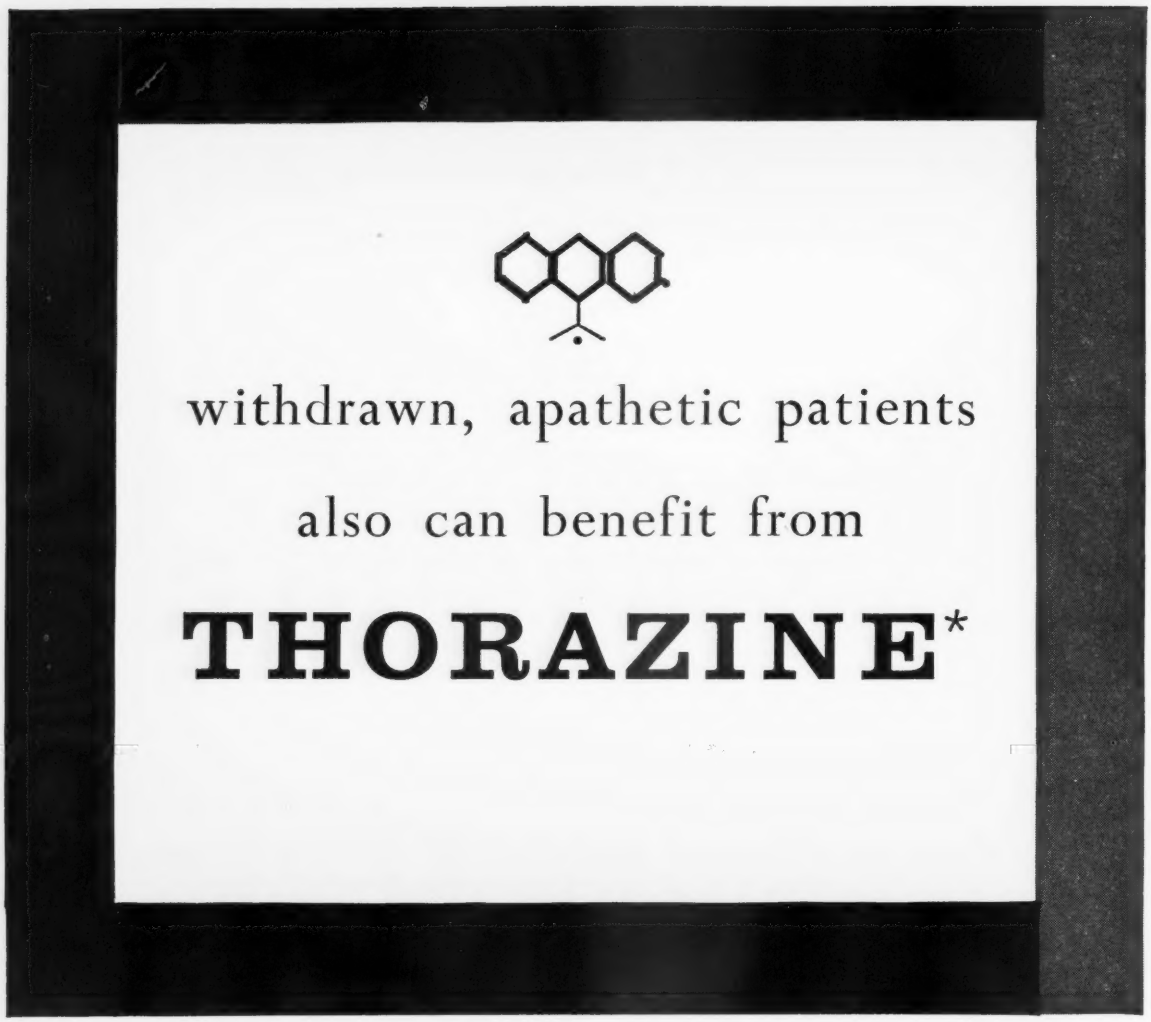

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DISEASES *of the* Nervous System

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

Dynamic Psychologic and Somatic Treatment in Psychiatry

OSKAR DIETHELM, M.D.

Psychiatric treatment, whether it emphasizes the psychologic or the somatic aspect, must be based on a sound psychopathologic understanding. This understanding will permit the physician to be guided by indications in the type of treatment to be selected, with the recognition of possible therapeutic goals. The concept "psychopathology" has in recent years only become reformulated, according to present-day psychiatric knowledge. I shall try to present briefly the essential points. One considers pathologic in the anatomic-physiologic and in the psychologic fields tissue and functions which are outside the realm of the average with regard to intensity or when their development does not correspond to the age period. A more recent formulation stresses disturbance in adaptation.

Psychopathologic studies must consider minutely all observable facts and describe them in an adequate way as well as analyze all dynamic factors which can be determined. These dynamic factors may be physiologic, psychologic, or social, with a multitude of factors playing a role in the development of the illness and varying during its course. During the period of treatment one must watch carefully the changing psychopathologic picture and adjust therapeutic procedures to it. The clinical picture may change because of the progressive nature of the illness, leading to chronicity and final invalidism or to recovery; or it may alter because of changes in the physical or social conditions, or in the therapeutic influence.

It is worth while to remember that historically, after the phase of careful observation and description of all observable facts, there followed the phase in which Freud and others pointed out that unconscious dynamic factors bring forth psychopathologic phenomena. Psychoanalytic studies included the study of etiologic factors and an attempt to modify them by alleviating or abolishing the signs of illness and malfunctioning. Etiologic treatment came into psychiatry at a period when internal medicine and surgery had been stressing the need for the study of the causes of disease and manifestations for over half a century. The therapeutic results of this type of thinking were not always encouraging but finally led to progress in therapy which has been unequalled in the previous history of psychiatry. Dynamically oriented psychotherapy was rejected by many primarily because some theoretical concepts were found to be unacceptable. Similar rejection occurred when, a hundred years ago, cellular pathology was proposed as the basis of modern pathology. In any revolutionary change in medicine a break with the past is inevitable but there will later occur an evolutionary readjustment in which the past and the new become linked together. Extremist attitudes become adjusted, and with the progress of medicine, new concepts and theories replace what at first had seemed most advanced but has since become outmoded.

This development has taken place in psychiatry and now permits a fusion in psychopathology in which the observation of demonstrable facts and the study of dynamic factors merely form two aspects of the same scientific approach. Dynamic factors now refer to the somatic and social as well as to the psychologic. Direct life influences and unconscious factors are recognized as of importance. Treatment may be directed at changes in the conscious personality, in the environment, in the physical condition or in the unconscious. The goal may be the re-

From the Department of Psychiatry of The New York Hospital (Payne Whitney Psychiatric Clinic) and Cornell University Medical College.

moval of etiologic factors or the alleviation of their influence. It may be a restoration to adequate functioning or a tolerance of what cannot be adjusted, freedom of spontaneous activity or the restriction of an invalidism of varying degree. These considerations refer to any psychiatric disorder, whether they be found in a psychiatric hospital, in a general hospital, or in an actively working group in the community. In all these patients, the total psychopathologic findings and the healthy aspects of the person must be evaluated critically and re-evaluated with the progress of treatment. There is no therapeutic procedure which can disregard the psychopathologic facts as they emerge and submerge, if it is to be considered scientific.

The relationship of patient to physician is now generally recognized as being of great importance in any psychiatric treatment. The actual development of the transference phenomena may occur naturally in the course of therapy or may be fostered therapeutically by the psychiatrist. A fullfledged transference rarely seems necessary therapeutically but if one desires to work with it, the psychiatrist must be fully aware of all its implications and know how to master it. He must recognize the excessive difficulties in dissolving the transference successfully, for example, in well-organized paranoid schizophrenic patients, the type whom one finds rarely in the psychiatric hospital but frequently in the psychiatrist's office in the community. A less strong and psychopathologically different relationship between physician and patient is utilized in the average intensive psychotherapy. There is little contra-indication to an intensive treatment of this type if the physician is aware of the psychopathologic changes which occur during treatment and recognizes the need for rapid modification of the relationship. It is also possible to use this relationship skillfully in the broader sense by including more than one physician or other selected persons. In our treatment by carefully supervised assistant residents, the attending psychiatrist who sees the patient regularly may assume a definite and changing role, similar to that of the therapist. In one 16-year-old adolescent, for example, the therapist assumed different roles during the course of a year's treatment while the patient's attitude to the attending psychiatrist changed little. He represented the reliable and helpful father who seemed to stand by in a frequently turbulent treatment, carried out by the assistant resident. This principle of the inclusion of two psychiatrists in psychotherapy is nothing new but its dynamic nature in psychopathology has not been explored.

For many years one of the goals of therapy was to achieve insight; i.e., an understanding of the nature of one's illness and of the dynamic factors involved. In order to achieve insight it was deemed necessary to bring forth a great deal of material from the past, often greatly disturbing to the patient and resulting in additional highly complicated psychopathologic reactions. This type of treatment may bring about good final results because of the internal adjustment which occurs, but not because of the insight obtained. To bring forth past material may be necessary to find the solution of emotional factors which will result in healthy repression or will permit forgetting that which is no longer important. On other occasions the patient may profit from a review or from a searching analysis of the past to apply what he has learned to the present and to the future. He may obtain an understanding of his behavior and his actions, avoid much of what is undesirable and control that which cannot be avoided. Only in select cases should one try to make the unconscious conscious indiscriminately. In more cases it will be the therapeutic task to facilitate repression or to aid in obtaining distraction. To my mind, it is important that the physician obtain insight into the dynamics in order to guide the patient along the therapeutic path which seems most fruitful rather than to try to give the patient such knowledge.

The type and degree of therapeutic activity should depend on the psychopathologic condition and not the physician's bias or special skills. In recent years there has been a tendency to consider therapeutic activity the same as aggressiveness. This mistake may have undesirable effects because it may restrict desirable therapeutic activity. A

desirable form of activity is to discuss or review the treatment with the patient. However, a review may telescope certain experiences and make them seem more important than they actually were, or make them appear too threatening. Such focusing of the dynamic factors was seen in the case of a bewildered 21-year-old medical student who, during an analysis of his ill-controlled heterosexual activities, became aware of poorly repressed homosexual desires. Without active guidance by the therapist he would have made these relatively unimportant homosexual strivings the focus of a sexual analysis and lost at best a great deal of time.

It is obvious that therapeutic activity involves a great deal of psychopathologic knowledge and awareness and also the danger of error. However, therapeutic passivity also involves many risks. It is one of the great tasks before us to clarify the indications and procedures involved. A grave mistake is to avoid working through resistances, but equally unwise is it to attack head-on all types of blocking. It is very doubtful that a complete working through is always possible. It is a partial working through which may give the desired therapeutic results. There are so many factors involved that one should not expect to analyze them so completely as to demand an elimination of all etiologic factors.

It may be desirable to continue the therapeutic attack uninterruptedly. On the other hand, we all know from personal experience that where there is constant blocking, rapid progress may be made on return from a prolonged vacation. With our present knowledge, it is impossible to state whether this is due to the change in the therapist after much needed relaxation or due to the changed dynamic constellation which occurred in the patient during the interruption of treatment. Little is known about spacing of interviews and dynamic readjustment.

Some years ago one spoke of distributive analysis, thinking primarily of the physician leading the analysis in various directions which seemed most promising. It was not sufficiently recognized that good results were at times obtained by the distribution of emotions, especially in patients overwhelmed by excessive anxiety and in panic reactions. Having recognized our limitations in abolishing well-established emotional reactions, compulsive repetitiousness, and emotional fixations, psychiatrists have stressed increasingly the goal of establishing tolerance to one's shortcomings and to those of others. It should be emphasized that to establish in a patient tolerance to himself, to his psychiatric illness, or to his personality shortcomings is an involved dynamic treatment which may take a long time. The progress of desensitization deserves similar attention in the treatment of inflexible attitudes, e.g., in catathymic reactions of depressed patients.

Supportive therapy is another example of dynamic treatment in which it is necessary to understand the patient's personality and the dynamics which make it impossible for him to be sufficiently self-reliant.

Spontaneous synthesis is the hoped-for occurrence in passive analysis. Whenever synthesis does not occur it is the therapeutic task to assist in achieving this goal. Whether to direct analysis to synthesis or when to do it is at present left without much guidance for the individual physician. It may be easy to reach a decision in the more extreme cases, e.g., in psychopathic personalities or immature and dependent patients. In the vast majority, however, we are in need of guideposts which are sadly missing in our psychopathologic knowledge.

Duration of treatment has attracted attention but no safe answers are available because usually the goals are not sufficiently clear. Therapeutic nihilism or unjustified optimism is the guiding focus of the therapist more frequently than sound evaluation of the psychopathologic findings involved. Few psychiatrists check the psychopathologic findings during a prolonged treatment as regularly as the internist would the pathologic findings. Psychiatrists have less need than other practitioners of medicine to look for the healing tendencies which should be fostered. "Flight into health" may frequently present a wholesome tendency which might be encouraged by the experienced clinician whose mature judgment might cause him to be satisfied with a limited therapeutic goal.

The same type of thinking applies to psy-

chologic, social, and somatic treatment. The dynamic social factors must be evaluated critically in relation to the existing psychopathologic condition. Adjustment to them may become a major therapeutic concern. In other cases removal from them may be the solution. Desensitization or learning to tolerate the previously intolerable may be another goal. The linking of the use of any somatic treatment to changing psychopathology and to psychotherapy is becoming increasingly recognized. In some depressed patients in whom illness has turned to improvement, electroconvulsive treatment may terminate the depression in a short time and foster a desired repression of important dynamic factors. In some patients, however, an insufficient repression occurs and the depression recurs after a relatively brief period of well being. In these patients, as well as in psychoneurotic depression, psychotherapy must help to clarify and correct dynamic factors before electroconvulsive treatment can give the desired results. In most patients the postconvulsive phase includes well-planned psychotherapy. Another example of the need to combine psychotherapeutic and somatic procedures, both related to the psychopathologic findings, is presented by lobotomy. It is of interest to note the superiority of results obtained in this type of treatment to mere brain surgery, as seen in the follow-up of operated patients.

The development of psychotherapy has been great during this century. With the acceptance of modern psychopathology and its application to all therapeutic procedures, the differences which had been stressed by psychiatrists of different training have greatly decreased. Different theories and concepts are proposed and used by different groups. These theoretical differences are stimulating and challenging and lead to progress. The therapeutic attitude and many procedures are fundamentally the same demanding clarification of the indications for therapy. This clarification, I believe, will be obtained by study of the psychopathologic conditions, and will enhance greatly our therapeutic results.

Psychopathic Traits are Inheritable

P. R. NEWKIRK, M.D.

Are psychopathic traits inheritable? This is a controversial subject. Most juvenile delinquents come from disorganized families, broken homes, slums infested with neighborhood gangs. But why do the parents of these children break their marriages, why do they neglect their children? One reason is that quite often one of the parents is egotistical, impulsive, unable to consider consequences, ready to sacrifice the future of the children for a sexual whim or for desire for liquor. Although neither father nor mother may have a criminal record, they may reveal psychopathic personality traits. As such parents create a bad environment and as a bad environment may produce bad children, it is generally impossible to determine whether psychopathic juveniles are more the products of nature or of nurture. Only adopted individuals permit us to differentiate between heredity and environment.

In 1952[1] we reported observations on psychopathic delinquents. Particular attention was paid to adopted individuals and several cases were described. Recently all cases of delinquents who had been observed at Northern State Hospital from 1940 to 1955 were reviewed. The majority was admitted after 1949 when a new law concerning psychopathic delinquents and sexual psychopaths went into effect. In the review special attention was given to those who were adopted and had grown up in economically secure homes where children were wanted. Some of them were reared single, a few with other adopted children, several with children born to the adopting parents.

We had three groups of involuntary observation cases at Northern State Hospital:

Read at the 16th Annual Meeting of the North Pacific Society of Neurology and Psychiatry at Gearhart, Oregon, April 12 to 14, 1956.

From Northern State Hospital, Sedro Woolley, Washington.

a. 64 adults were transferred for psychiatric observation from the state reformatory. Among them were two adopted persons about 3%.

b. 24 adults were committed by court for observation as alleged sexual psychopaths. None of these was adopted.

c. 191 juveniles 14 to 17 years old were referred for observation as alleged psychopathic delinquents or, in two cases, as alleged sexual psychopaths. In this group 14 or 7.3% were adopted. One characteristic case may be described: Two unrelated 1½ year-old Negro baby boys were adopted by a Negro couple with the idea of bringing them up like twins. One of them, W.K., stole as a young child, walked off with toys, later took valuables. In 1952 he committed armed robbery, stole 40 cars, wrecking two. He took to heroin, hid razor blades in his hair as weapons. He was committed for observation and then for an indefinite period of time as a psychopathic delinquent. The other adopted boy has never been in trouble and is developing normally. Nothing is known about W.K.'s natural parents, but probably they had abandoned their child. Environment cannot be blamed for W.K.'s delinquency; it did not affect unfavorably the other unrelated twin-by-adoption. W.K. is a constitutional psychopath.

Fourteen adopted individuals among 191 psychopathic delinquents or 7.3% is a high percentage indeed. It seemed important, therefore, to know the percentage of adopted persons in this age group in the general population. Authorities in the State of Washington could give no answer to this question. According to the U.S. Department of Health, Education and Welfare no statistics exist on the percentage of adopted individuals in the age group 16-21. Statistics on adoption are furnished by 29 states only. In Washington and Oregon statistics on adoption were started only a few years ago.

To obtain at least an estimate, inquiries were made at the local high school. There are six adopted subjects among 600 students, with a slight possibility that there may be other individuals whose adoption has, in the small community, remained a secret to the school and to all friends. This possibility is about the same as the one that among the 191 juveniles committed for observation at our hospital there may also be unrevealed cases of adoption. The assumption seems, therefore, permissible that the number of adopted subjects is higher among juvenile delinquents than among high school students. Seven percent versus one percent is a remarkable difference. This result should not be interpreted as an argument against adoption. An example may explain why. If among children in general there should be 1% with psychopathic traits and among adopted children 3% it would mean that the incidence of psychopathy is 200% higher among adopted than among other children. Still an adopting couple would have a 97% chance to have a socially conforming child.

Adoption has been of particular importance in postwar Germany. M. zur Nieden[2] reports favorably on the results of adoption. Being wanted by good, well-tested homes, adopted children developed slightly better than average; zur Nieden finds, however, that adopted children, one or both of whose parents have behaved asocially, turned out badly more often than adopted children in general. Adoption in the war and postwar years in Germany cannot be readily compared with adoption in the U.S. Death of one or both parents due to causes of war often led to adoption of children. In this country the prevalent causes of adoption are shown by the statistics of the U.S. Department of Health, Education and Welfare.[3] Ninety thousand adoption petitions were filed in 1953 or 80% more than in 1944. Fifty percent of the adopted children were born out of wedlock, half of the unmarried mothers being teenagers. The other 50% came mainly from homes broken by separation, divorce or desertion. This survey permits the conclusion that psychopathic traits might be more common among natural parents of adopted children than in the population in general. Such traits may be: lack of moral restraint, lack of sense of responsibility, impulsivity, lack of ability to consider consequences. In this connection it seems ominous that the number of children born out of wedlock has increased from 87,000 in 1938 to 146,500 in 1951. Statistics on the increase of broken homes would supplement these data.

This paper is not concerned with juvenile delinquents as such and their present management. No doubt all possible efforts at re-education should be made and the outstanding importance of environmental causes of juvenile delinquency is not denied. However, the hereditary element deserves more attention than it has obtained. No one who

has many years of experience with psychopathic delinquents can smile derisively at Lombroso's concept of the "born criminal."

It is easy to see the color of a person's skin and 30 states have stern laws against "miscegenation." But no state forbids the marriage of mentally deficient persons, although they can be easily recognized and are known frequently to produce mentally inferior offspring. Even more strange and impossible would sound a plan to prevent propagation of psychopathic personalities. They, too, can be diagnosed psychiatrically and psychologically. They serve sentences and during intervals between incarcerations they may reproduce at leasure, uninhibited by law in any state.

There is not the slightest chance of seeing changes in this field in the predictable future. Religious and moral concepts, the idea that all men are born alike, humanitarian endeavor, sympathy with the unfortunate youngsters who just take a joyride, militate against improvement of the present system which cuts off twigs and cannot possibly consider felling the sick tree.

The new classification, sociopathic personality, stresses the fact that the psychopath shows his abnormality by his behavior towards society. We know how he behaves in our society. It would be interesting to know what influence the sociopaths have had in history. The population of Attica around 500 B.C. excelled in natural curiosity, interest in scholastics, industriousness and ambition, qualities spectacularly absent in all psychopaths. Some of these qualities, natural curiosity and interest in scholastics, were less conspicuous among other great nations of antiquity. The Romans did not have them to any major extent. In later centuries of the Roman Empire the complaints became more frequent about the laziness and the lack of morals among the masses of Rome who went after panem and circenses (food and pleasure free of charge). It is believed by most historians that the Roman Empire was not conquered from the outside, but its citizens became demoralized, were no longer able to defend their country. Into the vacuum streamed the barbarians. Our explanation of this development may be: Hard, struggling peoples eliminate "throwbacks" by death and expulsion. Wealthy peoples tolerate them, until the decadent offspring become dominant. This may be one of the regulatory mechanisms which thus far have prevented civilizations from lasting indefinitely.

Two hundred years ago the Western world embarked on an experiment. Prior to that date antisocial elements were eliminated by death or transportation. From about 1776 on they were given prison sentences and were no longer excluded from propagation. History never goes into reverse and there will be no return to the barbaric punitive methods of former centuries. Other methods will have to be devised to exclude certified psychopaths from propagation. At this point nothing prevents us from increasing our knowledge of the constitutional and hereditary background of the psychopathic personality.

1. Precocious applicants for marriage licenses and unwed teenage parents might be given standardized psychometric and projective tests. If done on a large scale this would permit conclusions as to the incidence of low intelligence and of psychopathic traits in this prolific group.

2. As adopted delinquents permit research on the constitutional separate from the environmental element, thorough statistics on adoption and adopted persons including their ancestry should be devised and collected.

With an accumulation of such possibly conclusive data adequate regulatory legislation might become a reality.

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Effects of Physiodynamic Treatments in a Hospital over a Ten-Year Period

ISIDOR W. SCHERER, PH.D., and ARNOLD TREHUB, PH.D.

This study surveys the results of treatment procedures at the Northampton VA Hospital from 1946 to the present time. It describes the improvement status of 533 mental patients who have received electroconvulsive treatment, lobotomy, insulin, and drug therapy (chlorpromazine, reserpine). Improvement status was based on an evaluation made two to five months after treatment. This interval was selected in order to study the relatively recently introduced drug therapies and at the same time make all treatment checks at comparable intervals. A group of controls (N=68) who received none of the physiodynamic treatments was evaluated at a comparable time interval.

A comparison of treatment procedures carried on in the same hospital milieu offers the advantage of a fairly constant frame of reference; i.e., the physical setting, personality of the staff, and their overall philosophies and attitudes towards treatment remain relatively stable. In such a situation too, frames of reference related to the estimation of recovery are likely to show more consistency than one would expect in sampling a variety of hospital settings. These are variables which may play a very significant role in altering the indicated rates of improvement from one installation to another and are difficult to control. If the conditions described above, however, are fairly constant, they are less likely to interfere with securing a reliable estimate of the effectiveness of a particular treatment procedure.

Another important advantage of using a single hospital is that the investigator is able to take into account factors in the situation which might require that we accept with reservations the reliability of some of the data collected. The following criticisms can be leveled against the present study: (1) there was no consistent group of raters; (2) there were no uniform rating instruments; (3) variables such as chronicity which were used to identify groups were not obtained in a similar manner for the different treatment procedures utilized; (4) the samples used were quite small. In so far as the psychological test data are concerned, the following criticisms should be considered: (1) data were collected in different physical settings; (2) different examiners administered the tests; and (3) different teams of workers evaluated qualitative test material.

With the above factors in mind, let us now proceed to examine the results of analysis of improvement in 533 mentally ill patients who were treated during the past ten years at the Northampton VA Hospital. The patients were classified in three different ways. First, all of the 533 patients were studied as a group. They suffered from many types of disorders — manic-depressive psychosis, schizophrenia, psychoneuroses, and character disorders. This sample ranged in age from 18 to 60 and had been hospitalized from one to 30 years. One sub-group was then made up of patients between the age of 17 and 50 years who had been sick less than two years and who were diagnosed as schizophrenics of paranoid and catatonic types. Another sub-group was made up of chronic cases who had been in the hospital more

TABLE I

Percentage of Improvement in all Cases 1946-1956

Treated 533—Controls 68

		Same		Slight		Considerable		Marked	
Group	No.	N	%	N	%	N	%	N	%
Electro-convulsive Therapy	94	43	46	23	24	15	16	13	14
Lobotomy	145	79	54	41	28	24	17	1	1
Insulin	92	38	41	16	17	30	33	8	9
Chlorpromazine	116	21	18	45	39	40	34	10	9
Reserpine	86	27	31	37	43	17	20	5	6
Controls	68	42	62	19	28	5	7	2	3

From the Veterans Administration Hospital, Northampton, Mass.

This paper was presented to the Second Psychiatric Workshop at the Veterans Administration Hospital, Bedford, Mass., March 21, 1956.

than five years but similar to the first sub-group in age and diagnosis.

Table I deals with the first overall group of patients and shows the results of the various treatment procedures attempted as well as the status of the patients who did not receive any physio-dynamic treatment.

TABLE II

Improvement Percentages Including "Slight"

	N	Improved %	Unimproved %
Electroconvulsive Therapy	94	54	46
Lobotomy	145	46	54
Insulin	92	59	41
Chlorpromazine	116	82	18
Reserpine	86	69	31
Controls	68	38	62

The percentage of patients showing any degree of improvement under the different treatments (Table II) are as follows: chlorpromazine 82% (N=116), reserpine 69% (N=86), insulin 59% (N=92), electroconvulsive therapy 54% (N=94), lobotomy 46% (N=145). Matched controls received no treatment but showed an improvement rate of 38% (N=68). Combining the drug groups (202 cases), we obtain an improvement percentage of 76. Statistical analysis of the percentage differences between the various treatments (see Table III) reveals that the drug group shows significantly more improvement than any of the other groups (ECT, insulin, lobotomy, control). Insulin appears to be the second best treatment. It is significantly more effective than lobotomy or no specific treatment (control). Electroconvulsive therapy is only more effective than no specific treatment. The good rate of improvement in the controls is probably due to the numerous ancillary treatment activities that exist in VA installations.

TABLE III

Reliability of Improvement Percentage Difference in All Cases

	Lob	Insu	Chlor	Res	Con
Electroconvulsive Therapy	NS	NS	.001	.05	.05
Lobotomy		.05	.001	.001	NS
Insulin			.001	NS	.005
Chlorpromazine				.05	.001
Reserpine					.001

NS—Not Significant.

When the progress of patients is examined so that those who improved only slightly are dropped from analysis, the following percentages of improvement are obtained (see Table IV): chlorpromazine 70%, insulin 50%, reserpine 45%, electroconvulsive therapy 39%, lobotomy 24%, controls 14%. Utilizing the results of the study of the reliability of the percentage differences (see Table V), we note that chlorpromazine is the most effective treatment procedure. The other treatments i.e., insulin and electroconvulsive therapy are reliably more effective than lobotomy or no treatment. Finally, lobotomy is least effective and the results are not significantly different from what was noted in the control sample.

Although the differences in effectiveness are statistically significant, the question is whether this table offers much guidance in regard to the selection of patients for the varieties of treatments noted. We know that there are certain improvement rates which are indigenous to the diagnosis, chronicity and age factors which will have to be considered before the decision is made that the rankings noted above are meaningful. In the second phase of this study, age and diagnosis were controlled, and the effect of chronicity investigated. Thus a sample of acute paranoid and catatonic patients (sub-group 1) and a similar sample of chronic patients (sub-group 2) were compared.

TABLE IV

Improvement Percentages Excluding "Slight"

	N	Improved %	Unimproved %
Electroconvulsive Therapy	71	39	61
Lobotomy	104	24	76
Insulin	76	50	50
Chlorpromazine	71	70	30
Reserpine	49	45	55
Controls	49	14	86

TABLE V

Reliability of Improvement Percentage Differences Excluding "Slight"

	Lob	Insu	Chlor	Res	Con
Electroconvulsive Therapy	.05	NS	.001	NS	.001
Lobotomy		.001	.001	.05	NS
Insulin			.05	NS	.001
Chlorpromazine				.01	.001
Reserpine					.001

NS—Not Significant.

Examination of Tables VI and VII shows that the drugs are reliably more effective than either lobotomy or insulin when a chronic population of paranoids and catatonics is studied. The following percentages were obtained: drug 77%, electroconvulsive therapy 70%, insulin 54%, lobotomy 41%. The drugs do not appear to be significantly more effective than electroconvulsive therapy in this population. A comparison made between the treatment procedures on a similar but acute population does not at this time show any particular advantage for any one treatment procedure over another. The following percentages were obtained: insulin 66%, electroconvulsive therapy 65%, drug 63%, lobotomy 50%. These results suggest that it is too early to make the decision, particularly as it relates to acute cases, that insulin and electroconvulsive therapy be discontinued with catatonics or paranoids. Although there is no apparent statistical advantage noted above in so far as the use of drugs is concerned, the ease with which this treatment is administered permits its use with more patients and consequently the absolute number of cases who will improve will be greater.

When we analyze certain tests of memory, abstraction, learning, attention, and self-concept, we find that only the self-concept test showed a significant change resulting from treatment despite the positive alteration in improvement status. Although the tests used do not appear sensitive enough to show differences which might be specifically related to an individual treatment procedure, psychological tests may offer other types of information which may be of considerable value in assisting with such problems as the selections of patients for particular treatments and such issues as determining the specific characteristics of psychological changes associated with patient improvement. A study[1] made of patients who had undergone electroconvulsive therapy showed that the improved patient became more effective on tests which measured simple learning ability, motoric speed, and memory efficiency. In a study[2] where lobotomy, electroconvulsive therapy, and control patients were compared, some tests seemed capable of assisting on the issues of prognosis since they were able to predict to a certain extent the kinds of patients who would improve. It was noted that regardless of the treatment employed, or whether the patient received no treatment; i.e., the controls, those patients did well who showed good memory, good abstractive capacity, and fairly good motoric skill.

TABLE VI

Percentage of Improvement in Acute and Chronic Cases

CHRONIC CASES	N	Same	Slight	Considerable	Marked
		%	%	%	%
Electroconvulsive Therapy	23	30	39	22	9
Lobotomy	34	59	26	15	
Insulin	24	46	12	38	4
Drug	56	23	38	34	5

ACUTE CASES	N	Same	Slight	Considerable	Marked
		%	%	%	%
Electroconvulsive Therapy	26	35	35	15	15
Lobotomy	10	50	30	20	
Insulin	55	34	22	31	13
Drug	24	37	29	17	17

TABLE VII

Reliability of Improvement Percentage Differences in Acute and Chronic Cases

CHRONIC CASES	Lob	Insu	Drug
Electroconvulsive Therapy	.05	NS	NS
Lobotomy		NS	.01
Insulin			.05

ACUTE CASES	Lob	Insu	Drug
Electroconvulsive Therapy	NS	NS	NS
Lobotomy		NS	NS
Insulin			NS

NS—Not Significant.

Summary

The relative effectiveness of a variety of physiodynamic treatments was studied in a hospital sample of 533 mental patients. In this sample as a whole, without parceling out age, chronicity, or diagnosis, it was found that chlorpromazine was most effective, followed in order of effectiveness by

reserpine, insulin, electroconvulsive therapy, and lobotomy. With age and diagnosis controlled, it was found that in a chronic sample, drugs were most effective, although not significantly more so than electroconvulsive therapy, while in an acute sample, no one treatment appeared to be significantly superior.

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Measurement of Symptomatic Changes in Hospitalized Psychiatric Patients

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Introduction

There is now available to the psychiatrist a larger array of agents for symptomatic therapy than ever before. The introduction of several potentially useful new drugs each year gives promise of a steadily increasing list of such agents. The wise selection of a treatment program for the individual patient presupposes a detailed knowledge of the effects of each therapeutic agent and of the relative effectiveness of the various available agents. As new therapies appear it may require a period of several years for the physician to acquire the necessary knowledge through clinical experience. Unfortunately the published reports of intensive studies with a new agent usually present results in terms of percentages of improved patients in various diagnostic categories or in terms of impressions about the outstanding symptomatic effects. Reports by diagnostic categeory are of limited value because it is well known that any single psychiatric diagnostic category may include an extremely wide range of symptomatology. Impressions of outstanding effects are also somewhat inadequate. In order to choose a treatment plan the physician needs to know the effects of the available therapies upon the entire spectrum of behavior traits. A third inadequacy in the literature is the relative lack of published reports comparing various agents with one another in terms of their detailed effects. A somewhat more systematic approach to the problem of symptomatic therapy in psychiatry would seem to be indicated.

A research program has been undertaken designed to supply measurements of changes in each of a wide variety of psychiatric symptoms and to permit the correlation of these changes with the administration of various symptomatic therapies and combinations of therapies. Thus, it should be possible to determine the range of symptoms effected by each therapy or combination, the rapidity of onset and duration of such effects and the relative effectiveness of various therapies and combinations for a given symptom or constellation of symptoms.

The present communication reports the first phase of this program: the construction of a suitable instrument for measuring symptomatic changes in hospitalized psychiatric patients and the determination of the reliability of the measurements which it provides.

Methods

In order to be most useful, the behavior traits measured should correspond as closely as possible to the descriptive outline used by the psychiatrist in examining his patient. Accordingly, a 32 item behavior rating scale based upon a widely-used version of the mental status examination[1] was devised. Because most of the ratings were to be made by ward attendants, considerable simplification was required, both in organization and terminology. A list of the behavior items

From Southeast Louisiana State Hospital, Mandeville, La., and Division of Research, Louisiana State Department of Hospitals.

contained in this scale is given in Table 1. While most of these terms are familiar or self-explanatory, a few require clarification. "Bizarre muscular activity" was defined to include stereotyped movements, posturing, grimacing, tics and cerea flexibilitas. "Bizarre speech activity" was defined to include neologisms, perseverative speech, clang associations and echolalia. The term "pointlessness" has been used by us as a somewhat simplified version of the concept of intellectual dissociation and includes incoherence, irrelevance and tangentiality. "Delusions of persecution" was defined to include referential as well as persecutory ideas.

All items have been defined carefully and in detail. As an example we present the following definition of "pointlessness," certainly one of the more difficult items to define.

Pointlessness: the degree to which the patient's words, sentences and paragraphs, spoken and written, fail to hang together to make an understandable point. It is unnecessary that the point be correct, or true, nor that you agree with it, but only that the patient be capable of making it. We include here both the patient's ability to talk to the point in his general speech and his ability to "get the point" and answer it when someone asks him a question. At one extreme is the patient whose words do not ever hold together to make any point at all, (for example, "Dairy Jones is see so always milk doesn't") and whose answers to questions almost always miss the point completely, (for example, Q.: Why are you here in the hospital? A.: "Sauerkraut"). Less extreme forms of this disorder are seen in patients who make good sentences but never reach any point or conclusion. They often talk on and on, give many unnecessary details, go off on side issues, half miss the point of questions, fail to understand jokes, misunderstand things people say to them or seem to twist the meanings of what others say. Finally at the other extreme is the patient who always talks completely to the point, answers questions to the point and understands clearly the point of what is said to him.

Patients were rated weekly on a four-point scale for each of the 32 items. The four-point scale was chosen because of evidence that the elimination of an easily chosen center point at which behavior may be rated diminishes somewhat the "error of central tendency" and gives thereby more reliable ratings.[2] Provision has been made for the indication of "don't know" on each item and raters were instructed to mark "don't know" when their contact with the patient has been insufficient to obtain information concerning a particular trait. Those traits which are dependent upon speech for their expression were marked "don't know" in mute patients.

All of the psychiatrists and most of the nurses and ward attendants at the Southeast Louisiana Hospital have participated in this research. Before beginning to make ratings all participants received a 15 page booklet containing general instructions and the detailed definitions. Nurses and attendants attended a course of three, weekly one-hour lectures. The lectures were directed toward an explanation of the purpose of the ratings so as to increase motivation, toward further clarification of the instruction booklet material, and toward providing an opportunity for questions and discussion. For the first eight weeks of data collection the senior author made rounds on all wards two or three times, during each rating day. He examined each rater's work and discussed individually questions and problems about the scale. The ratings of individual patients were not the focus of these discussions, but rather the rater's understanding of the general method of rating or of a particular item. Thus the discussions are believed not to have influenced the analysis of reliability between raters which is presented below. As an additional safeguard, raters have been instructed not to do their ratings in groups and to avoid discussions of the ratings of individual patients. It is our impression that this instruction has been generally followed. A few attendants who demonstrated persistent inability to comprehend the rating task were dropped from the project. After 14 weeks of ratings follow-up conferences were held with small groups of raters so that remaining problems could be discussed and clarified.

In order to minimize the clerical and statistical work of accumulating and analyzing the data, ratings were made directly on Mark Sense IBM cards. Two cards are required for the complete rating of a patient (Figure 1). Cards were pre-punched for year, hospital (other Louisiana State hospitals are now using this scale) and patient's name and unit number. At the same time the name and number were mechanically printed in the

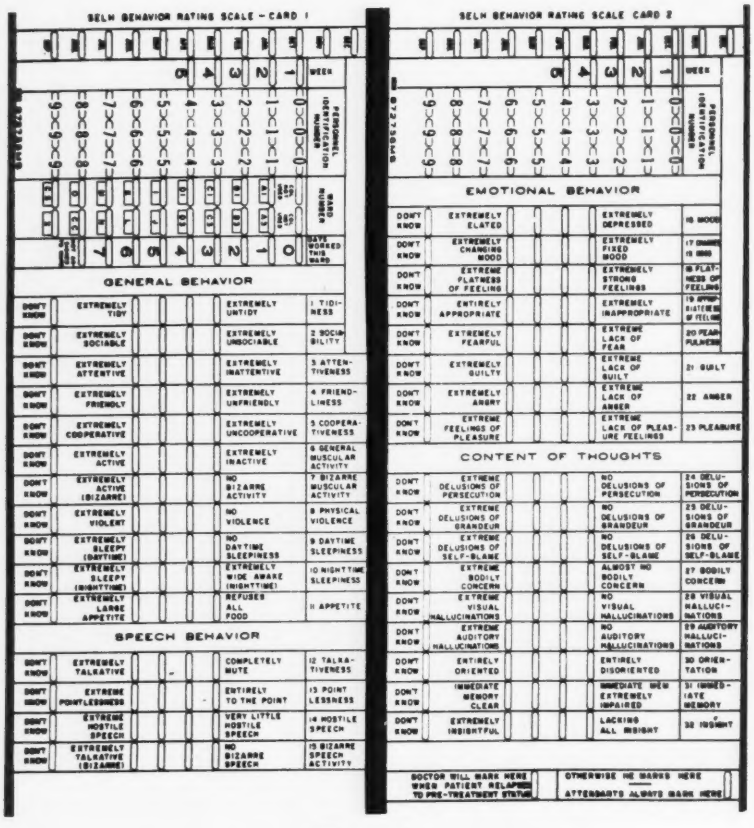

Figure 1.

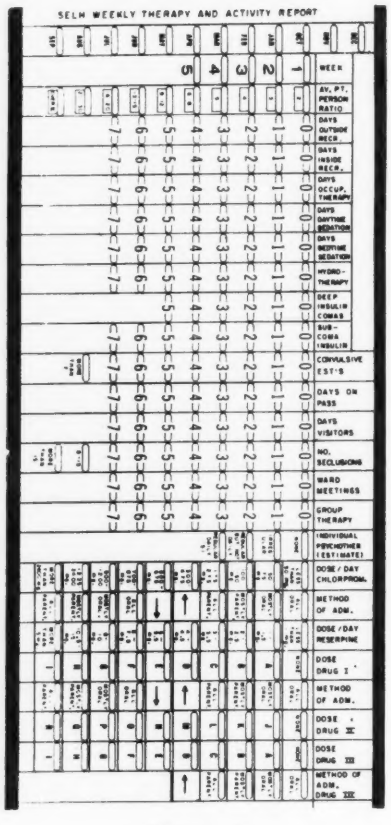

Figure 2.

space at the top-right of each card. The specific date (i.e. month and week), the patient's ward number and a three digit number identifying the rater were pre-marked on each card in the hospital research office at the time cards were assembled for transmission to the wards. Thus the raters were required to mark only the number of days on duty during the preceding week and the rating scale itself.

Each nurse and attendant received cards for between ten and twenty patients per week, depending upon the number of personnel on a ward. Psychiatrists rated one-fourth of their case load each week. Nurses and attendants were relieved from ward duty during the time necessary for the completion of the ratings. On each ward a room in which raters may work without interruption was provided. Raters were instructed to mark their cards in the order in which they appear in their envelopes. The cards were arranged in a different, but random, order each week to avoid any systematic error which might arise from repeatedly rating patients in the same order. Insofar as the number of available personnel permitted, an attempt was made to have each patient rated by three separate persons each week.

Reliability of the Ratings

The reliability with which each of the 32 items can be rated during a given week was estimated by examining the agreement among raters for that week. Reliability coefficients were obtained by means of Horst's technique[3] for each of the 32 items on each of the first six weeks of the project. Horst's procedure was used because the number of raters of each patient varied from patient to patient and from week to week. Table I presents the results of these reliability analyses.

The reliabilities shown are estimates for behavior assessed during a single week by a single rater. There is no reason to restrict assessments to such a short period of time or to a single rater. Thus we plan to use, in subsequent analyses of the effects of treatment on behavior, ratings of the same patients by several raters repeated weekly for three to as many as thirteen weeks. This

will increase markedly the initial reliabilities for single week's rating. The augmentation in reliability can be forecast quite accurately by means of the Spearman-Brown formula.[4] It will be possible to obtain extremely high reliabilities for most items merely by repeating ratings for additional weeks or by using more raters, the number of weeks and raters to be determined by use of the above mentioned formula. The Spearman-Brown formula assumes that each replication of ratings is correlated equally with preceding and subsequent replications. If rater 1 and rater 2 correlated .50 with each other and rater 3 is added to the pool, then it is assumed that rater 3 correlates .50 with raters 1 and 2.

TABLE I

Average Item Reliability Coefficients Ranked by Magnitude of Correlation

Item No.	Behavior Trait	Average Reliability Coefficient	Range of Weekly Correlations
31	Immediate Memory	.71	.68-.74
30	Orientation	.67	.56-.77
1	Tidiness	.64	.47-.72
8	Physical Violence	.64	.29-.90
14	Hostile Speech	.62	.46-.80
22	Anger	.58	.45-.84
13	Pointlessness	.57	.23-.72
2	Sociability	.55	.44-.65
9	Daytime Sleepiness	.55	.21-.78
4	Friendliness	.54	.47-.61
29	Auditory Hallucinations	.54	.44-.72
12	Talkativeness	.52	.35-.63
28	Visual Hallucinations	.51	.18-.92
5	Cooperativeness	.50	.42-.57
32	Insight	.46	.16-.65
11	Appetite	.42	.18-.58
15	Bizarre Speech Activity	.41	.27-.48
18	Flatness of Feeling	.40	.26-.48
3	Attentiveness	.39	.27-.51
24	Delusions of Persecution	.37	.10-.54
7	Bizarre Muscular Activity	.35	.22-.45
16	Mood	.34	.02-.78
23	Pleasure	.33	.06-.83
25	Delusions of Grandeur	.31	.02-.54
27	Bodily Concern	.28	.18-.41
19	Appropriateness of Feeling	.27	.16-.40
17	Changes in Mood	.26	.11-.49
6	General Muscular Activity	.23	.12-.32
26	Delusions of Self-blame	.18	.03-.30
20	Fearfulness	.15	—.01-.24
21	Guilt	.08	—.05-.23
10	Nighttime Sleepiness	.08	—.50-.71

For example we can obtain a reliability of .95 for "immediate memory" (which has a reliability of .71 for one rating) merely by obtaining eight ratings of the same patient using different raters or several weeks. "Cooperativeness," with a reliability of .50 for one rating, would require 19 replications to achieve a reliability of .95. "Delusions of grandeur," with a one-rating reliability of .31, would require 42 replications while "nighttime sleepiness," with a one-rating reliability of .08, would require 218 replications. With this in mind, we consider that the coefficients shown in the table indicate a satisfactory reliability for all but perhaps the final four items in the list. The number of replications required to obtain a reliability of .95 for these four items would obviously be exorbitant. In view of an observed tendency for reliabilities to increase between the first and sixth weeks and in view of our continued training of raters well beyond the sixth week, it seems likely that the reliability studies on the ratings of more recent weeks will reveal further increases, particularly for the more difficult items. An analysis of the agreement between psychiatrists and attendants rating the same patient for a given week is now in progress.

The reliability analyses reported above were obtained for a varying sample of 100 to 150 patients about twelve work-hours after the completion of the ratings using an IBM 604 electronic computer. It is estimated that the same analysis would have required approximately six hundred days if a hand calculator had been used.

The cooperation of physicians, nurses and ward attendants in performing the weekly ratings has been excellent. Particular attention is called to the salutory effect upon the morale of attendants participating in the project, as observed by nursing and medical supervisors. From numerous conversations with these employees it is our impression that this effect is mediated by a general feeling of satisfaction and accomplishment in being included in a research program but also by a distinct feeling of security which comes from having and sharing a new vocabulary with which to think and communicate about the observed behavior traits of psychotic patients. The statement, "I under-

stand the patients so much better since I've been marking the cards," is heard frequently. (The labelling of a behavior trait is not the whole of understanding but is certainly a necessary first step. It may be that in an effort to avoid meaningless technical jargon our previous training of psychiatric ward personnel has failed to supply them with the vocabulary necessary for intelligent thinking about their patients.)

Conclusions

It was possible to measure with satisfactory reliability most of the 32 items contained in a behavior rating scale based upon the mental status examination. It was possible, through careful definition and intensive instruction, to train non-professional ward personnel to perform the ratings which result in these measurements. Ratings were obtained directly on Mark Sense IBM cards with a remarkable saving of man-hours in the processing and analysis of the data. Non-professional personnel obtained, from participation in the rating project, benefits in terms of morale and education which should be of value to the patients under their care.

Plans for Further Use of the Data

The entire patient population of the Southeast Louisiana Hospital, an acute treatment center of approximately 400 beds, is included in this research program. The hospital admits about 350 new patients each year.

It is planned to determine the presence or absence of significant changes in various behavior traits following the initiation and again following the termination of each therapy and combination of therapies in current use. The presence or absence of significant trends toward change in the behavior traits during the period of therapy will be studied.

Weekly therapy and activity reports are obtained on each patient from appropriate medical and nursing personnel. These reports are transferred, by the office staff, to Mark Sense IBM cards specially prepared for this purpose (Figure 2). It will be seen that these cards provide space for reports of treatments and activities commonly included in the term "milieu therapy," for standard somatic procedures such as electroshock and deep coma insulin, for individual and group psychotherapy for certain of the new drugs, chlorpromazine and reserpine, and for additional drugs which may be added to the study. To date meprobamate has been added as "Drug I." For each drug two columns are provided, one to record average daily dose and a second for route of administration.

The weekly therapy and activity report cards are pre-punched and pre-printed to correspond exactly with the identifying information on the rating scale cards. Thus it will be possible to perform the correlational analyses entirely by mechanical methods.

Summary

Because of the need for detailed, comparative data on the efficacy of the available symptomatic therapies in psychiatry a 32 item behavior rating scale for use primarily by non-professional personnel has been devised. The contents of this scale and the training of employees for rating are described. Reliability indices based on the first six weeks of the scale's use are presented and appear to be satisfactory for most of the thirty-two items. The advantages of having ratings made directly on Mark Sense IBM cards are demonstrated. Impressions are given regarding the personal benefits to psychiatric ward attendants derived from inclusion in this rating scale project. Plans for the correlation of the rating scale data with reports of the administration of various therapies are described.

Authors' Note: We wish to acknowledge the support for this program which has been given through the generous supplies of reserpine (Sandril®) provided by Eli Lilly & Co., meprobamate (Equanil®) by Wyeth Laboratories, and chlorpromazine (Thorazine®) by Smith, Kline & French Laboratories.

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Limited Goal Group Psychotherapy on a Locked Service

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The techniques and goals of group therapy are uniquely determined by the circumstances surrounding the formation of the group, the continuity over time of the membership of the group, the psychological characteristics of the patients who form the group, and the personality and training of the group therapists. In this paper we wish to set forth the techniques and goals of group psychotherapy on an acute locked psychiatric service, omitting however, discussion of the personality and training of the therapist. We will describe the circumstances in which groups are formed, the continuity of membership of the groups, and the psychological characteristics of the patients who enter the groups and we will attempt to show how the techniques and goals of the groups are dependent on the described characteristics.

The acute locked treatment service, with two wards of from 15 to 20 patients each, occupies one floor of a general hospital. Group therapy meetings are conducted in a room containing easy chairs, lounges and coffee tables. However, when the weather is favorable the group therapy meetings are conducted on the fenced-in porches. In addition to the group therapy meetings, which are held twice a week for each ward, patient government meetings are held once a week for each ward. At the patient government meetings—in which the group therapists do not participate—patients take up complaints about ward management, suggest changes and improvements, and plan activities. Each patient has his own doctor who sees him regularly for psychotherapy. The intensiveness of the individual psychotherapy is largely a function of the patient's needs and resources.

Most of the patients on the acute locked service carry psychotic diagnoses, although they vary in degree of pathology. The extremes of pathology may be characterized on one hand as the withdrawn, hallucinating schizophrenic, and on the other as the panic reaction with no thought disorder and no withdrawal from others. Between these extremes are the extremely depressed and unresponsive patient, the patient who is confused but not withdrawn, the inadequate personality who responds only on stimulation, the hostile paranoid patient who feels threatened by the approach of others, the agitated delusional patient who projects all his difficulties on the world around him, the hyperactive patient, the more intact patients whose delusions are not entirely ego syntonic and who can communicate adequately in many areas, the anxiety reactions who are groping for realistic solutions to their problems. This review of types of patients is not all inclusive but may give some flavor of the extremes that are seen together in these groups. In any particular activity, whether it be recreation, spontaneous ward activity, or therapeutic meetings, these patients tend to divide themselves into participants and communicators, as against nonparticipants and non-communicators.

The average duration of stay of patients on the acute locked service is two to three months, with some staying for as long as a year and some for a week or two. Thus, while the patient population is continually changing, at any given moment there is a core group of patients who are living in the ward traditions and are capable of transmitting ward mores to new patients.

Group therapy is presented to the patients as an activity in which they are all expected to engage, but which is at the same time not compulsory. A few minutes before each meeting the therapist and a co-therapist who is either a psychology trainee or a resident in psychiatry, circulate through the ward and announce that the group is meeting. The aides and nurses also inform patients in various parts of the ward that the group is meeting. Patients learn that if they do not go into the meeting room no further pressure will be put upon them. If they ask directly whether it is compulsory to attend

From the Veterans Administration Hospital, West Haven, Conn.

the meeting, the response is, "We would like you to come to the meeting, but if you find that you do not wish to stay, you may leave at any time." Occasionally it becomes necessary to reiterate in the group itself that attendance is voluntary. About eight to eleven patients attend the group on the average. Of these approximately six attend all sessions consistently throughout their stay in the hospital, so that in the group as well as on the ward there is a core of patients who carry over the traditions of the group from session to session and who set the tone for the transient members. On occasion a disturbed patient who enters the group for the first time may tax the unverbalized structure of the group, and the session may be devoted largely to dealing with his behavior.

Having characterized our groups with respect to circumstances surrounding their formation, continuity of membership, and psychological characteristics of patients who comprise the groups, we may now consider the goals and techniques of the group therapy.

Ideally the goal of group therapy for the patient should be the achievement of extrahospital adjustment through the process of understanding himself in his interaction with other patients. However, we have found it necessary to establish much more modest goals because of the nature of our groups, and we have found that, paradoxically, the goals for each member of the group must be different. We are driven to this necessity by virtue of the wide divergence in pathology of the patients constituting the groups. For each patient the goal of the group therapy is to advance him the next step in the direction of the often hopelessly remote goal of adequate adjustment. For some patients life outside the hospital is impossible; nevertheless we still strive in group therapy to make it possible for these patients to live more satisfactorily within the hospital. As the patient advances one step in his behavior, the goal becomes to advance him another step. If the patient regresses, the goal is to bring him forward again.

This statement of the goals of our group therapy in terms of immediate steps is in no way contradictory to the group approaches which set out from the start with a kind of total mental health as goal. We stress the modest next step as the goal because so often the more global goal never gets achieved, and because it gives us circumscribed and possibly measurable criteria by which to gage our group therapy and from which to secure rewards not only for the patients but for the therapists themselves. The next step for a mute, withdrawn patient may be some small communication between him and another patient. The next step for a hypomanic patient may be some control over his hyperactivity. The next step for a paranoid patient may be to verbalize his fears. The next step for an anxious patient may be the recognition of his dependency needs. The gamut of next steps may run from some small change which brings the patient into interaction with others, to an insight which may conceivably lay the foundation for personality reconstruction. Those next steps which involve self-understanding or insight and hence offer hope for future control and use of otherwise uncontrolled impulses, are of far greater value than those which merely orient the patient toward the long road he must travel. However, in the setting described, it would be folly to hope to reap such results often for one's efforts.

In any particular group therapeutic session it is possible to fulfill the therapeutic next step needs of all the patients involved, even though the steps are at vastly different levels for the various patients. The notion of a group dealing at one and the same time with such a variety of pathology and at such different levels, may be jarring to those group therapists who have wrestled with problems of selection of patients for group therapy. The fact is, given the kinds of patients we have to deal with, and the circumstances under which our groups are organized, we have seen group therapy become meaningful in the terms we have described. Let us consider some highlights of a single session.

Fifteen patients were present. Mr. George, a hypomanic patient, opened the session as soon as the group was congregated, by attacking the hospital, the doctors, and the nursing personnel, for refusing to allow him to leave the hospital. Mr. Karp,

a paranoid schizophrenic who was making a good recovery under shock, attempted to break into his vituperation with remarks to the effect that one had to cooperate with the staff. In the course of ten minutes George became so excited that when one of the therapists attempted to get him to specify what was wrong, he threatened to punch the therapist. He then arose abruptly and left the room. There followed a flood of angry remarks from various members of the group, Carroll, Cole, Speiss, and Warren, regarding George's conduct on the ward and his tendency to keep the ward in turmoil. Mr. Bell, another patient, spoke of the helpfulness of the staff and the excellence of the hospital. Mr. Small disagreed with the others and tended to defend George's behavior in that sometimes one could not control his feelings and had to blow up. One of the therapists pointed out that no one had made these comments while George was present in the group. Stuart, another patient who was ordinarily withdrawn, commented that George was justified, and that the staff held people in the hospital needlessly and against their will. After about twenty minutes George returned to the group and sat down quietly. However he was unable to control himself and soon began to talk in the same angry fashion as when he had first left. At this point Cole attacked him directly for failing to see that the nurses and staff had many patients to care for and that they could not respond immediately to all of his needs to the neglect of the others. Carroll and Warren joined in the attack on George. George's response was to become more controlled and to acknowledge that he was prone to fly off the handle, but that this was his illness and what he had to fight against.

A number of the patients said nothing during this session. What it meant to them is a matter of speculation. The fact that the doctors were not disorganized by George's attack, and that George himself worked through his anger to a point of rationality may have been significant for them. Behaviorally, however, they did not advance but maintained the same pathological withdrawal. For George the group therapy provided a situation in which, finding that his hostile outburst only isolated him from the group, he was forced to acknowledge the inappropriateness of his behavior and to plead with the group to see him as a sick man. Cole was an individual who most clearly showed a therapeutic step. Ordinarily withdrawn, self-punitive, and complaining about somatic ailments, he found it possible to attack another patient and to succeed in making the other submit. Carroll and Warren, perhaps on the pattern of the therapists' unperturbed response to George, overcame their own anxieties about this violent-seeming patient and expressed their anger at his acting out. Small, who attempted to support George's outburst, was left unrewarded in his stand, since George himself ended up by pleading his illness. Stuart, a withdrawn patient who hesitantly voiced sympathy for George, was at least momentarily prompted to express himself to the group although the subsequent development of the session may have provided little further reward for him. Karp and Bell who tended to praise the staff and the hospital rather than attack George directly, affirmed in the face of an attack on the staff and hospital, that they were being helped.

In our view the therapeutic achievements of the session described were, for the various patients, such things as: rewarded self-assertion and rational criticism; unrewarded pathological behavior; paradigmatic maintenance of control by the therapists under stress; momentary participation by a withdrawn patient; assertion of a cooperative attitude by some patients. We cannot tell what the long run effects of such therapeutic events in the group may be. We may only reason that if repeated often enough and under enough different conditions, they will help the patients learn more adequate ways of dealing with their problems. Group therapy thus provides an environment in which appropriate and meaningful responses may be made to situations which otherwise might produce pathological responses.

Having described the goals of this type of group therapy, let us consider the techniques. The therapist, being cognizant of the tremendous discrepancy in the needs of the various patients must guide the development of each therapeutic session in such a manner as to offer therapeutic advancement to all present. In actual practice the needs of some of the patients must be sacrificed at times in favor of the needs of others. When patients at a higher level of development are actively working on their problems, the withdrawn patient must be left to his own devices or to gain what he can in silence. At other times the therapist may actively involve an ordinarily withdrawn patient who shows signs of coming out of his shell, by questioning him, by focusing a great deal of attention on him, by reassuring him, even though the more active members appear prepared to proceed on their own. Our experience suggests that the model of the therapist communicating with a withdrawn or disturbed patient can be of considerable importance in determining how the more intact patients themselves subsequently deal with such patients.

Since the patients live together in very

close quarters, they often enter the group therapy session with some ward event or common problem uppermost in their mind. The core patients who have been present for numerous sessions and who carry on the main traditions of the group quickly make clear to the less experienced members that within the group complaints about management cannot be acted upon, but that the group can make an effort to understand pertinent psychological problems. The disorganized patients who persist in bringing up complaints are generally effectively handled by the group, but occasionally it is necessary for the therapists to reassert that while anything may be talked about in the group, the therapists are not in a position to do anything about complaints.

Because of the special nature of the groups described the therapist must be extremely versatile in his approach. He must encourage the patients to participate by direct questioning. He must throw the burden for participation completely upon them. He must be prepared to give short lectures if necessary to reassure anxious patients, about such matters as shock treatment and the meaning of being on a locked ward, and on the other hand must avoid being placed in the role of a dispenser of information. The two major techniques which appear to be most effective in the groups described are first, dealing with the affective interaction between patients and therapists, and second, leading patients to recognize the irrationality of the fears which they talk about in the group or of the pathological behaviors which they manifest in the group. The first technique may be described as pointing out and highlighting emotional reactions, the second as reasoning with the patient. Certainly these two techniques are often merged and are more effective when merged. The first technique, pointing out emotional reactions, is reflected in such statements as, "Mr. X, you seem to be angry with Mr. Y." The second technique, reasoning with the patient, is reflected in such questions as, "Mr. X, why were you angry with Mr. Y?"

Pointing out emotional reactions is perhaps the most potent tool in group therapy with all types of groups. In our particular groups where delusional material is frequently expressed, the technique of reasoning with patients is of extreme importance because almost without fail as a patient develops his exaggerated ideas their fallacies become clear to the others in the group, if not to the patient himself. When this happens it is sometimes possible to begin to examine the function of the erroneous thinking in the patient's psychology, although interpretations are only infrequently made. While the therapist is initially the one who points out the emotional reactions and reasons with patients, the group from time to time becomes sufficiently advanced for patients themselves to assume the responsibility for behaving in this way. Our objective is always to provide a setting in which patients may behave in a mature way even under stress, as a step toward behaving in such a manner in their ultimate life situation.

Summary

In this paper we have presented a limited goal approach to group psychotherapy on a locked psychiatric ward. The diversity of the patients in the group, and the transiency of numerous members of the group make it necessary to deal with different levels of pathology at the same time. The group therapy is oriented toward advancing each patient one step along in the direction of adequate adjustment, the particular step being dependent on the patient's level of integration and pathology. The group thus must be meaningful at different levels to differen patients. The techniques used to achieve this "next step" goal are diverse, but two major techniques are: pointing out emotional concomitants of behavior in the group; and reasoning with patients who present unrealistic ideas or pathological behavior. From time to time, as the group reaches a high level, the patients themselves may take over responsibility for doing these things in the group; often the therapist must carry such responsibility.

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Communication in Brief Psychotherapy With the Non-Psychotic Patient

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One of the central problems in the field of psychotherapy is the problem of communication between doctor and patient. For many years psychiatry has put major emphasis on the understanding of the patient. First, in the understanding of his background story, and later on the understanding of his behavior. Still later, with the arrival of Freud and the discovery of free association, we began to interpret the signals sent by the patient in a more comprehensive way. The data accumulated became so fabulous that it has established a whole new scientific language.

Of recent date, efforts have been made to understand more by extensive analysis of recorded interviews, by taking movies of interviews, and Malmo and others have even gone so far as to evaluate evidences of communication in the patient's physiology, including such things as muscle tension, sweating, changes in blood pressure, pulse and respiration. In this he has endeavored to quantify the patient's signals.

Because of the limitations to these efforts, psychiatry has recently turned to the pure sciences for additional help in the understanding of communication and communication theory. One phase of this has been the study of cybernetics, a whole new field involving the relationship between human function and the function of complex electronic machines. It is trite to say that communication is a two-way process, but important when we realize that psychiatry has spent a major part of its effort in understanding only one side of the two-sided process. Part of our confusion has arisen from the fact that the patient and the therapist are simultaneously sending and receiving. This adds to the misunderstanding just as if two people on a telephone line were talking at the same time. Efforts have also been made to understand the total communication process in therapy. A recent development has been Sullivan's evolution of the use of the participant observer. In spite of emphasis on the patient as sender, however, psychiatry has been concerned in an implicit sense with the therapist as a sender for all of its recent past. Several papers have been presented concerned with the timing of interpretations and, of course, much concern has centered around the problem of countertransference. However, there has been the assumption that the therapist is the "constant" in the therapeutic process, that he is predictable, controllable, and that the patient is essentially the variable. Recent evidence has tended to throw some doubt upon this and to suggest that the therapist's function and the therapist's person is the most significant variable to be encountered. This is another way of expressing Barbara Betz formulation that the dynamics of therapy is in the person of the therapist. From this it becomes clear that the more wellness the therapist has, the better the patient's therapy will be. The 'weller' the therapist, the better will be the communication, and from Dr. Ruesch we get: the more they communicate the better the patient's treatment. Out of these we can derive a final step which is really an hypothesis that the more signals the patient receives from the therapist the more healthy he becomes.

For some time a group at the Psychiatric Institute has pressed the effort to vary the signals sent by the therapist, hoping that an increase in the strength of those signals, or a freer utilization of them by the sender would move us one step further in the process of becoming more effective as therapists. 'Just between us boys,' it is reassuring to recall that the communication engineers discovered some time ago that the best reception necessitates a certain amount of background noise. Pure signals are less well received than signals which are superimposed on a background of noise. I say this because I wonder if we psychia-

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trists have been afraid to send signals with any freedom because we recognize how much noise is present in our usual communication.

Before trying to discuss any of the tactical aspects of communication from the therapist to the patient, it must be noted that psychiatry has recognized for some time that psychotherapy for the therapist or an analytic experience for the therapist has proved a sine qua non for adequate communication. It is our conviction that the adequacy of communication possible from the therapist to the patient is very limited unless the therapist has had a personal experience of such depth and duration as to make him thoroughly conversant with his own function and one that has contributed significantly to his personal growth. The effectiveness of content analysis of the therapeutic relationship also needs no validation here, since it has been proven by the experience of each of us. In addition to this, many people have learned much through the study of electrical recordings of their therapeutic interviews, and many of us who are not clearly research workers realize how much we can get from studying notes taken during an interview, which later contribute to our own professional growth.

It should be obvious that a close relationship and joint functioning with a colleague offers a valuable aid to the professional growth of any psychotherapist, and therefore to his increasing ability to communicate to the patient his own total functioning. Finally, many psychiatrists are quite convinced that the totality of the therapist's responses can never be completely conveyed by verbalized communication. From our use of multiple therapy in the treatment of chronic schizophrenic patients several techniques have been adopted to work with non-psychotic patients.

This paper discusses experiences with the utilization of methods long known and employed to better understand the patient, and to adapt these for understanding and improving the sending function of the therapist. Included among these are unrestricted free association by the therapist, the use of manifest fantasy content of the therapist and the reporting of this to the patient, reporting of manifest content of the therapist's dreams during the interview to the patient and the communication on a verbal basis of the therapist's behavior responses to the patient, and, finally, the reporting to the patient of the therapist's physiologic responses during the interview. These are all classified as signals arising in the therapist which can in part be reinforced and sent to the patient.

When we try to increase the communication from the therapist to the patient, it is apparent that we alter some of the dynamics of the traditional therapeutic method. When the patient is asked to free associate, one demands something further from a person who is already emotionally impoverished and repressed. Therapy also increases passive dependence by allowing the patient to do something for the doctor and the relationship may be further disturbed by the patient's effort to express content which will be satisfying to the therapist. When the therapist assumes greater responsibility for communicating to the patient, as well as listening with the third ear, he must push his own "inner truthfulness" as Martin Grotjahn calls it to the point where he is willing to expose more and more of his total self to the patient.

There is evidence that many therapists free associate during the interview, although they do not report it to the patient. Anyone who offers his free associations to the patient to activate the relationship by that means, assumes several things: One, that the patient will not walk out on him when he "talks in strange tongues." Two, the therapist assumes the unconscious perception by the patient of the latent content of these free associations. Three, the therapist assumes that his wellness is greater than his sickness, and that the patient will not be harmed by being burdened with the therapist's residual pathology as much as he would be helped by the therapist's total participation. He further assumes that the therapist's wellness exceeds the patient's wellness, or at least differs in character, and finally that the therapist's dreams during the interview are specifically related to the therapeutic interview situation and that they are an effective therapeutic vector.

One of the precursors to the development of the techniques here reported, has been the utilization of more specific limitations to the therapeutic communication pattern. For example, our group has, for some time explicitly refused to participate in superficial conversation, and often has refused to answer questions in other than symbolic terms. That is, the therapist comes to respond to much manifest content only for its latent meaning. Further depth in the therapeutic relationship frequently emerges after insistence that the patient does not talk about things which are not understood by the therapist as having symbolic significance. It almost seems that when the therapist forces the patient to stop talking, this brings about a type of non-verbal communication that carries affectively loaded signals more effectively.

What follows serves to illustrate with examples, the participation in the therapeutic relationship by the therapist on a level which goes beyond that of deliberate, conscious understanding. The therapist will, of course, try to evaluate what he has said and what has taken place in the therapeutic interview after his spontaneous expression of himself. He must, however, realize that he will be subjected to the kind of embarrassment which was present in his own therapeutic experience and that his own residual pathology will emerge, and may in itself be a significant contribution to the patient's effort to mature. The simplest examples of this are the ordinary slips made by the therapist during the interview. As he participates in the patient's effort, a slip of the tongue will involve him more deeply in the therapeutic relationship and if he denies this slip, or tends to pass over it, the patient will, of course, recognize the therapist as one who participates less than completely in his own effort to grow up. As an instance, the author recently substituted the word "fee" for the word "free" in an early interview with a new patient, and then took up, on a personal level the basis for this slip of the tongue. When the therapist thus reveals to the patient a part of himself which is obviously interfering with his own functioning, he not only proves his own honesty and his own sincerity, but he also illustrates for the patient what the therapist will expect in the way of participation on the part of the patient. There is no better way to show the patient what we mean by free association than to illustrate it with some free association of our own.

Another example of the therapist's affective participation occurs if he joins the patient in a fantasy relationship. This may or may not be inaugurated by the patient. Frequent openings for joint fantasy are presented by the patient in such a way that if the therapist is ready he can participate comfortably and easily, for example:

> Patient said in the third interview, "At times I feel like I'm only half here." The therapist responded, "Where is the other half?" The patient answered, "The other half of me, I guess, is back on the farm with mother and daddy." The therapist asked, "Can you see this half of you?" The patient answered, "Oh yes, I am dressed in a Buster Brown suit and am playing in the back yard."

This switch to the present tense indicated the occurrence of a joint fantasy, and the therapist switched to the present tense with the patient. "Can you see me there with you?" The patient may take this up quite automatically, or the therapist may have to force the issue by asking the patient to look again. At another time a patient noted during an interview, "At times I feel like a little boy." This again left an obvious opportunity for the therapist to participate in a bilateral fantasy relationship with the little boy. One patient said, "Yesterday I had a vacant feeling." The therapist suggested that the two of them fill in the vacancy. Another patient said, "I feel as though I am down in the bottom of a well." The therapist participated in the patient's effort to get out of the well, having a good bit of give and take before the therapist found the well, went back to his car to get a rope and helped the patient climb out of the well.

Experience will show how useful it is for the patient to carry the initiative in the fantasies. The therapist waits for the patient to decide crucial questions of movement and finds that frequently if he, himself, tries to decide, the patient will disagree with him. However, the therapist can feel free to push the origin of the joint fantasy.

Patient L. F. had made tentative efforts in the eighth and ninth interviews to recall his childhood relationships and in discussing his inability said: "My past seems like a desert."

Dr: Can you visualize this desert?

Pt: Yes, it is one I flew over in north India. (He describes an actual experience.)

Dr: Can you see yourself crossing it?

Pt: Yes.

Dr: How are you dressed?

Pt: Shorts, bush jacket, pith helmet and two canteens.

Dr: Can you see me?

Pt: No.—Yes, I can, too. You are a senior partner. (He begins to take initiative, picturing the jeep, extra gas, and outlines carefully the 60 mile trek, the necessity for precautions, etc. Gradually he flips from fiction to reality and into the present tense, describing the two edging along at 15 miles per hour, the terrible strain on arms and legs, of the jolting which necessitates changing drivers every hour.—He is sweating and breathing rapidly.)

Dr: My arms are awfully sore, would you spell me for awhile?

Pt: Yes. (He describes the 130 degree heat as they stop the car to change places. He notes that they have only made 10½ miles instead of 15 in the first hour. Describes an impassable spot in the road and advises Dr. to get out with the carbine and go on ahead. Describes his anxiety when Dr. disappears around a bend lest he be deserted, his euphoria at Dr. appearing and motioning him on. They suddenly run into a flash flood stream. He gets out to wade it for passability. It is too rapid and he comes back and they hunt for a staff to help steady him. He gets across and motions Dr. to bring the jeep which stalls in mid-stream. He comes back into the water and dries off the points and they make it to the other side. He expresses his anxiety about the fact they have come only 18 miles in two hours, even though they left early in the morning they may well be driving in the heat of the day which is dangerous. He realizes they cannot turn back and decides that they should go on, but with some sense of desperation.)

It may not be apparent in the illustration above how adequately the patient is free to disagree with the therapist who offers fragments of his own fantasy, but the patient ordinarily will have no problem with the therapist stealing the initiative once the fantasy is under motion. It seems amply clear that the therapist's participation changes the entire character of the fantasy and makes it much more therapeutically useful to the patient than a fantasy simply told to the therapist and with only the therapist's nonverbal participation.

Patient D.K. returned one year after ten appointments because of feelings of panic about homosexuality. He talked in general about similar feelings, but now said he liked people. Dr. wondered if he had accepted his femininity, but had not yet dared to be a man.

Pt: Everything goes blank, now.

Dr: Can you fill in the blankness?

Pt: Yes. It looks like a mass of pendulums.

Dr: Can you see us there?

Pt: No.

Dr: Can you see yourself?

Pt: Yes. I am lying on my face beneath them.

Dr: Are they all the same length?

Pt: Yes.

Dr: Can you see me?

Pt: No.

Dr: Maybe you can if you look around. (30 second pause. Patient begins to smile broadly.)

Pt: Now I can see you. You are standing way on the other side laughing hilariously.

Dr: Why am I laughing?

Pt: I don't know.

Dr: Can we do something about it?

Pt: Yes.

Dr: What?

Pt: I can get up and leave.

Dr: Can I go, too?

Pt: Yes. I was going to say that.

Dr: Well, are we going?

Pt: I want to do something first—

Dr: What?

Pt: I don't know, but I am afraid if I don't, I will just fall down on my face again. (Pt. anxious and restless now.)

Dr: What do you want to do?

Pt: Break some pendulums, I guess.

Dr: Do you think you can? Have you got a weapon?

Pt: I guess I don't ordinarily think of it so, but I have a weapon. It is my hands. (Three minutes silence.)

Dr: Well, do you want some help?

Pt: Yes, come on over. (He opens up his arms to the therapist.)

Dr: Did I come?

Pt: No, but I am coming over there. (He moves his chair over next to that of the therapist.)

Dr: Where are we now?

Pt: Outside all those pendulums.

Dr: Are you just going to go away and leave them?

Pt: No. I want to break them.

Dr: How will you do it?

Pt: Just break them across my knee, but we will have to do it one at a time.

Dr: I don't see why you can't do a whole bunch at a time.

Pt: I don't know. They may be pretty strong.

Dr: Well, why don't you start out with one?

Pt: O.K. I'll take the writing one (referring to the problem of extreme compulsive writing habits. Suddenly he grabs imaginary stick and breaks it over his knee. The tension is relaxed and he begins to laugh.)

Pt: Its force is broken and it sure feels nice.

This joint fantasy has illustrated how the therapist was able to communicate by the fantasy his acceptance of the patient's rupture of his childhood enslavement by time and by the compulsive patterns of repressed aggression. It is interesting to note how comfortably this type of fantasy can be interrupted by the statutory limitations of time at the end of the interview. Frequently we continue such fantasies for two or three interviews. Sometimes the fantasy will be interrupted in the middle because the time is up, and the patient will continue the fantasy himself. For example, the patient reported above, came back three interviews later saying that while he was waiting for his appointment that day he had completed the pendulum fantasy by himself. This had made him very proud. He said he grabbed another pendulum, and using it as a weapon, had broken them all to bits. He started to examine them on the floor and then decided they could all just go to hell.

Distortion in the sense perceptions of the therapist may also serve as a means of communication. For example, the author, in the middle of a deep relationship with one patient, became convinced that there were tears running down from the patient's left eye. Changing his position in the chair, he realized that this had been an illusion and his free association after he communicated the illusion to the patient was that the tears were the therapist's own tears. He also reported this to the patient.

When we first began to experiment with the therapist going to sleep in the therapeutic interview, there was a good deal of embarrassment on the part of each therapist, and considerable hesitation about taking the technique seriously. Later it was possible to develop this capacity so that the therapist could drop into a hypnagogic state or actually into a fairly deep sleep for a matter of only a few seconds or half a minute, and report to the patient the dream which had taken place during this time. The dreams are often easy to interpret, but the therapist makes no effort to interpret them to the patient, since he might then generate excessive anxiety in the patient. When they are reported in their actual character they rarely create anxiety in the patient, and yet seem therapeutic progress. Sometimes these ? 1 to be significant and useful in the patient's therapeutic progress. Sometimes these dreams serve a fairly simple interpretative pattern. One patient who had been like a servant to her family had brought this as one of her complaints, but had been able to make no progress in it. In the fifth interview her therapist fell asleep, and woke up reporting the following dream: "I was looking at your face and it was replaced by a large silver serving spoon." As the therapist reported the dream he was precipitated into a fantasy of the patient standing on one side of a table, serving her family who were on the other side, with a large silver spoon and that her right elbow was taped stiff with adhesive tape. The patient supplemented this by saying that she, herself, was probably fed from what dribbled out of the holes in the spoon. This illustration only serves to show how the patient's perceptions and evaluation of her own dynamics can be augmented by additional communication from the therapist.

A final example of the use of dreams within the multiple therapy situation: A young psychopath was well along in therapy when the two therapists were precipitated into a series of dreams in one interview. One therapist had the following: "An old lady had fallen on a mass of broken glass. I was amazed that she didn't injure herself." The second dream: "An old lady was standing on a dock in a black lace petticoat." The third dream "You (the patient) and I were talking about the wind. Somehow a difficult problem was involved. We were concerned. You, (the patient) said of the wind, 'Well, it's human, after all.' " During the same interview the other therapist reported to the patient the following dreams: He saw the patient standing on the stage wearing dark glasses. His second dream: A woman was lying on the floor in a very severe attack of hysterical crying. There were two men with her, but there seemed to be no problem involved in the situation. His third dream: Something was all packed in ice. He wasn't sure whether it was a coat or a person.

It seems from the above that the dreams in the multiple therapy situation are fre-

quently very fragmentary ones, and probably constricted by the relationship between the therapists. It is also clear, however, that they serve to add another avenue of communication in which the therapist is the sender, and we believe that the patient is able to hear the signals with sufficient clarity that they can be an effective vector in the therapeutic process.

The behavior of the therapist in the interview situation is ordinarily thought of as a problem in the professional growth of the therapist, but as having no true usefulness for the patient. We have come to feel that it is useful for the therapist to take up with the patient, or at least call to the patient's attention, the fact that "I have just crossed my legs," "I am rocking in my chair," "I am feeling sleepy," or "I just loosened my belt." These might be said to indicate respectively, therapist's latent aggression, his oral fantasies, or repression of his own aggression, and the fact of the therapist's introjection of the patient. Ordinarily, it doesn't seem that the therapist needs to interpret these things to the patient, but merely report them. Or it may be that we are not yet adequate to make our interpretations seem effective. Finally, our group has decided to report to the patient in addition the somatic symptoms occurring during the interview. Thereby the therapist indicates his participation in the therapeutic situation. All sorts of symptoms have been reported, paresthesias, reflex cough, headaches, brief asthmatic-like attacks, hay fever-like attacks, G.I. griping, muscular tensions in a leg or an arm, gastric hypersecretion, numbness of a limb or the therapist's wanting to cry without apparent reason. We know very little about this pattern, but it seems to be helpful to the patient.

Eastern Psychiatric Research Association

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Neurological Agents in Child Psychiatry

SOL NICHTERN, M.D.

Clinical observation of disturbed children at Bellevue Psychiatric Hospital reveals some pathology of biological, psychological and social functioning in nearly everyone of them. If their deviations are viewed as a dysfunction, distortion, or lag in their total potential, they become the end product of the degree of maturation, the extent of differentiation and the realized capacity of function of these children. The clinical entity in which the most serious distortions have been seen is childhood schizophrenia. Studies conducted by Dr. Lauretta Bender and her co-workers over the past 25 years have led to the definition of childhood schizophrenia "as a maturational lag at the embryonic level in all the areas which integrate biological and psychological behavior; an embryonic primitivity or plasticity characterizes the pattern of the behavior disturbance in all areas of personality functioning."[1] An integral part of the clinical picture is a reactive anxiety and secondary symptom formation.

With recognition of this entity as a dysfunction of integrative biological, psychological and social behavior, an approach to treatment developed which was aimed at stimulating maturation, facilitating differentiation and integrating performance. Among the many procedures explored were a group of biological treatment techniques. The most successful of these were electroconvulsive treatments and chemotherapy. Some 670 children have been treated with electroconvulsions. Enough beneficial results have been observed to conclude that this method of treatment is a valuable tool in the management of childhood schizophrenia.[2] Our experiences would suggest that the schizophrenic process itself is not altered. The primary gain from electroconvulsive treatments is the disruption of the reactive anxiety and secondary symptom formation. As this is achieved a restructuring of the internal organization of the child takes place and the maturational process is permitted to move forward. Thus electroconvulsive treatments may actually serve to stimulate maturation or help level unequal maturation and so facilitate better functioning.

A number of chemotherapeutic agents also have been helpful in the treatment of these children.[3] Their proper application has resulted in positive changes in many different areas of performance including vegetative, motor, perceptual, intellectual and social. By relieving anxiety, controlling impulsivity or decreasing excessive motor activity these drugs have demonstrated a wide range of beneficial effects.

These rapid strides in biological treatment have been paralleled by intensive research in the field of neurochemistry. More and more, neurochemical and electrophysical processes are being identified as important in the maturation, differentiation and function of the central nervous system. The fact that acetylcholine exhibits convulsant properties and evokes seizure activity revealed by the electroen-

*Meeting of December 13th, 1956.

cephalogram, has led to the hypothesis that an alteration of acetylcholine might be the essential process of seizures.[4]

Further evidence for this hypothesis stems from the production of convulsions by such specific cholinesterase inhibitors as DFP which cause an increased concentration of free, active acetylcholine. Significantly, cholinesterase activity is sometimes elevated in epileptogenic cortical foci as compared with non-epileptogenic cerebral cortex. There is also a detectable amount of free acetylcholine in the cerebrospinal fluid of patients with frequent seizures.[5] Experimentally induced seizures in mammals also result in significant findings. In the brains of animals removed during such experiments, marked changes of the bound and stored forms of acetylcholine occur before and during the seizures and fluid collected from the surfaces of the cortex contains acetylcholine in increased concentration. It is known that the acetylcholine-cholinesterase system is concentrated and active in the cerebral cortex and subcortical nuclei of gray matter which are the sites generally accepted as origins for seizure activity. Recent studies[6,7] have shown acetylcholine-cholinesterase activity to be present in every layer of the cortex. There is also an apparent relationship between activity of this enzyme system and neurone density and possibly neurone size in the mammalian cerebral cortex. This finding is unique for this particular enzyme system. None of the other prominent metabolic systems of the cerebral cortex appear to be so intimately related with factors of brain size or neurone density or size. This accumulated evidence would suggest that one of the major neurochemical effects if not the principal one of electroconvulsive treatment, is an alteration of the acetylcholine-cholinesterase balance of the central nervous system.

Some of our recent experiences with chemotherapeutic agents have led us to speculate that a similar neurochemical mechanism is involved in their action. Our most effective drugs are chemically unrelated and yet appear to have similar clinical effects. They come from the broad antihistamine family and include Benadryl, Thorazine, Frenquel and others. Our current knowledge of the pharmacology of these drugs would eliminate their common antihistamine action as the effective psychopharmacologic mechanism. And yet, some of our dramatic clinical experiences with nearly uniform dosage of 1 mg per pound body weight with these unrelated compounds suggest the possibility of a uniform neurochemical mechanism. The one other property that most of these drugs have in common is their mild cholinergic action. This again introduces the possibility of a central nervous system effect on the acetylcholine-cholinesterase balance. The consensus of current opinion in regard to the site and action of most of these drugs is that they depress the subcortical nuclei of the gray matter. This is the very area of the brain where the acetylcholine-cholinesterase system is most concentrated. As a further indication of the possible relationship of this enzyme system to the central action of drugs, the strong hallucinogenic properties of LSD and Bufotenine are blocked by Thorazine and Frenquel. Both LSD and Bufotenine are strong cholinesterase inhibitors. Similarly, other cholinesterase inhibitors such as adrenochrome, eserine and caffeine have hallucinogenic properties.[8,9] All of this suggests a relationship to a possible neurochemical mechanism of alteration of the acetylcholine-cholinesterase balance by the so-called tranquilizing drugs.

With our attention thus drawn to this neurochemical mechanism, examination of some of the basic research on maturation and differentiation of the central nervous system reveals a number of other interesting and possibly significant findings. A close relationship between the concentration of cholinesterase. A close relationship between the concentration of cholinesterase in the embryonic brain and functional development has been shown to exist.[10,11] The work of Boell and Shen[12] indicates that in the developmental stages, when no signs of neurogenic response is observable, no detectable amount of cholinesterase can be found in any part of the embryonic nervous system. As neurogenic responses develop, cholinesterase is demonstrable paralleling the level of neurogenic response. In sharp contrast to the differential and sequential pattern of accumulation of cholinesterase, the respiratory activity and respiratory enzymes, cytochrome and succinic oxidases are found to be practically identical in all parts of the developing nervous system. The close parallelism of the synthesis of succinoxidase to the growth curve of the central nervous system is in sharp contrast to the excess and differential accumulation of cholinesterase during the same period of development. This relationship strongly favors the suggestion that while the synthesis of respiratory enzymes in the central nervous system may be an index of general growth, the development of cholinesterase appears to be significantly correlated with the specific process of neural differentiation.

Experimental embryology has produced overwhelming evidence that most of the malformations in human beings can be produced experimentally in animals by chemical, nutritional and mechanical factors. It is likely that in the production of human malformations, the same factors are in operation. There are some isolated bits of evidence to suggest a correlation of malformations and malfunctions to the acetylcholine-cholinesterase balance. When such evidence is linked with the unexplained observation that the tissue containing the highest concentration of cholinesterase is the placenta,[13] one is led to speculate on the possible extensive role of the cholinesterase-acetylcholine balanc on fetal maturation and differentiation. Finally, when examined phylogenetically, another interesting fact emerges around this neurochemical balance. In some anthropods,[14] cholinesterase appears to be dominant in transynaptic conduction. In vertebrates, acetylcholine appears to be the dominant neurochemical agent involved in transynaptic conduction. Some such transformation in the very early stages of ontogeny of the embryo would conceivably add even greater import to the presence of

high concentrations of cholinesterase in human placenta.

Most of the current research work on acetylcholine and cholinesterase has been done within the areas of the function of the central nervous system. The weight of evidence establishes acetylcholine as one of the most important chemicals in the normal and possible abnormal function of the central nervous system. Thus it would appear from this rather cursory survey by a clinician of an extremely complex field of research that there is a significant correlation between the cholinesterase-acetylcholine balance and the maturation, differentiation and function of the central nervous system.

If we turn to the clinical and laboratory exploration of the biology of schizophrenia, the work of Hoskins[15] and his co-workers has interestingly enough led to a related speculation. To quote Dr. Hoskins: "I would propose that the schizophrenic psychosis represents an end result of a generalized failure of adaption that arises from defective evolution of the maturing processes. It is possible that the postulated immaturity might have its fundamental origin in a specific pathology—e.g., abnormalities of one or more enzyme systems in the brain. . . . The psychosis might be regarded as a functional disintegration of the personality due to an inability to meet the demands of maturity with the resources of the immature."

The correlation of such clinical conclusions with the outlined research work would indicate the need for a careful investigation of the effects of altering the balance of the cholinesterase-acetylcholine system. With this as a background, we have begun an exploration of the effects of various neurochemical drugs which may influence the balance of this enzyme system in schizophrenic children. This clinical research program is being pursued with the objective of developing new therapeutic approaches to the severely deviant child by favorably influencing maturation and development of the central nervous system.

In the early part of this year a pilot study was begun on a small group of retarded and regressed children in our nursery to evaluate the effects of various neurochemical agents demonstrating cholinesterase blocking properties. These children had all been diagnosed as childhood schizophrenics. They ranged in age from 2½ to 6 years. The total number included in the study to date is eight. Five of the children had never acquired any intelligible language. All demonstrated autistic features and on admission were either completely withdrawn, or only able to relate in the most infantile manner. They were observed for variable periods ranging from two to six months. No special treatment was rendered to any of the children other than our routine nursery supervision and one or the other of the two neurochemical agents under investigation. These drugs were usually administered after a minimum period of two weeks of observation in this setting. Variations in behavior and performance were reported by the trained nursery school teacher in charge of the nursery program, nurses and psychiatrists assigned to the individual cases. This personnel were generally unaware of which drug was being used, dosage schedules or modifications.

The two drugs selected for the initial phase of the pilot study were caffeine and Prostigmine (neostigmine methylsulfate). Both of these are known to have cholinesterase blocking properties. Rather than some of the more effective anticholinesterase agents, they were chosen for the initial survey because of their low toxicity. For children were placed on Prostigmine with dosage ranging from one to three mg. per Kg. body weight in a 24 hour period. The remaining four received caffeine in dosage ranging from one to five mg. per Kg. body weight in a 24 hour period. Both were administered by the oral route three times daily in divided doses. All of the children received their medication for a minimum period of two months up to six months. During this period, dosage was varied to determine clinical effects.

Both drugs were well tolerated as given. Caffeine, at the 5 mg. per Kg. level caused some increased irritability. No adverse reactions were seen with Prostigmine. There was no indication of either muscarinic or nicotinic effects. This observation is of particular interest since a recent study[16] of dosage of Prostigmine in children revealed muscarinic effects below 1 mg. per Kg. level. However, this study was performed with Prostigmine administered hypodermically and may account for the difference in our findings. It also raises the possibility that these children may be able to tolerate larger amounts of this drug.

The results of the prolonged administration of these two neurochemical agents were interesting and encouraging. All of the children appeared less autistic. A decrease in anxiety and withdrawal was reported by all observers. They appeared more alert and seemed in better contact with their environment. They were more aware of their peers and supervisory personnel. They were more responsive to routine. There was a decrease in the variability of their performance. Several of the children showed distinct improvement in integrative play activity. As an example of the changing behavior, one very autistic child, after one month of Prostigmine, began to eat better and gained weight. However she continued to withdraw from contact and when placed on the lap of an adult would hide her eyes. After two months, she rarely withdrew and would sit willingly on your lap in an infantile manner. After three months, she began to play with toys and showed interest in the other children. The drug was discontinued once, and she showed some regressive features shortly after.

In a pilot study of this nature, no definite conclusions are possible. Results are difficult to evaluate since many of our children show improvement with hospitalization. We have no way of knowing whether the in vivo action of these neurochemical agents parallel their in vito action. Neither are we sure that they are capable of reaching the central nervous system by oral administration. However it was our distinct impression that the degree of im-

provement was greater than in other untreated children in the nursery group. Signs of regression occurred in three of the eight children when their medication was discontinued. These results suggest a possible favorable effect directly correlated to the administration of the drugs and indicate some clinical validity to our theoretical speculations of influencing function by means of neurochemical agents. Regardless of the ultimate outcome of this pilot study, there is enough clinical and research evidence to indicate an exciting and potentially fruitful approach to the problems of retardation, regressive behavior and personality development in the deviant child.

Historically, the development of biological treatment techniques has challenged many workers in the field since the beginning of modern medicine. Many techniques have been used and discarded as inadequate. A growing body of knowledge in the basic sciences has served as the foundation for all of these efforts. Each one of these attempts has moved us a little closer to the solution of some of our unsolved problems. Some of the advances in our knowledge are providing us with clues for avenues of approach. It is conceivable that we may find the means of stimulating and strengthening the maturational processes with metabolic, enzymatic or endocrine derivatives. This basic principle is presented in the biological treatment approach herein considered.

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Discussion of Dr. Nichtern's Paper

GEORGE A. JERVIS, M.D.
Thiells, New York

I was quite interested in Dr. Nichtern's paper because, it seems to me, it is an attempt by a clinician to go beyond the clinical symptomatology of childhood schizophrenia in order to obtain information as to the pathogenic mechanisms of the disease. He formulates a highly speculative hypothesis and attempts to validate it by means of clinical observations of therapeutic results. There is much to be said in favor of this approach. May I limit my comments to 3 points.

1) The need for some new approach. As one who has witnessed, in some 30 years, the expansion of the concept of childhood schizophrenia from the rare forms of Heller's disease, of DeSanctis' demenita precocissima to the present all-enhancing diagnosis, I feel somewhat uneasy. Admittedly my experience is limited to that particular group functioning at a low intellectual level. But even within these narrow limits one is aware of the heterogenous nature of the clinical material. I remember one of the classical cases of DeSanctis proved to be, at autopsy, a case of cerebral lipidosis. Some patients with a diagnosis of childhood schizophrenia, I have seen, developed markedly dysrhythmic patterns in the EEG and were consequently classified in the group of dysrhythmic childhood dementia of Kennedy and Hill. Recently in England cases of schizophrenic-like psychoses in children have been reported in which an alteration of the metabolism of tryptophane is probably the cause of the disease. Childhood schizophrenia is apparently a group of diseases with somewhat similar symptomatology but different etiology and pathogenesis.

2) The second point concerns the type of schizophrenia that Dr. Nichtern mentions. In some of these patients there may be some disturbance in the acetylcholine-choline esterase system. This is indeed a bold hypothesis. But boldness is refreshing in this field. The importance of this enzymatic system in the normal functioning of the nervous system is well documented by embryologic, anatomical and chemical studies. In pathologic conditions we know that there is a breakdown of acetylcholine in epileptic attack and in anoxia conditions accompanied by clouding of consciousness. In adult schizophrenia, brain biopsies show often an increase of choline esterase, again suggesting a disorder in the acetylcholine-choline esterase system. One of the treatments of schizophrenia widely used in some countries of Europe is the repeated injection of acetylcholine. This hypothesis of Dr. Nichtern is, therefore, not only bold but also supported by some little bits of evidence.

3) The third point in my comment concerns the methods to test this intriguing hypothesis. Here the choice is limited. Biopsies from topectomy are out of the question because one always hesitates in recommending psychosurgery in children. Determination of acetylcholine in the spinal fluid of the patient has given negative results in a few cases

while increased acetylcholine is formed in status epilepticus. There remains to the investigator the method followed by Dr. Nichtern of assessing the changes produced by drugs which interfere with choline esterase. A few years ago Dr. Rowntree in England used DFP (diisopropylfluorphosphonate) a potent choline esterase inhibitor (30 times more potent than eserine) in a series of schizophrenics. He noted marked tolerance to the drug in schizophrenics as compared with normal individuals and observed also in certain cases interesting changes in the clinical picture. As far as I know the experiments were not continued on account perhaps of the marked muscarinic-like effect of the drug. Dr. Nichtern has used milder and safer inhibitors; eserine and caffein. I am sure many will await with interest further observations of his patients.

"How Do You Handle Post-electroconvulsive Agitation and Confusion?"

The following discussion represents answers given by the membership.

MORTON H. HAND, M.D.
New York City

Post-electro-convulsive agitation and confusion may be adequately controlled by intravenous injection of 1/6 to 1/4 of a gram of Pentothal solution. The patient is enabled to sleep through the period of excitement and amnesia. He may also be controlled by a second electro-fit given immediately after the first. Those who fail to respond to these methods may be managed by an intravenous injection of ¾ of a grain of Nembutal or Seconal. Promazine solution in 100 mg. doses intravenously is often quite effective.

Delayed confusion and agitation, occurring several hours after treatment and lasting until the next scheduled therapy is usually due to the inadvertent administration of a petit mal convulsion. It can usually be recognized by the fact that the excitement occurs after placidity had been produced as a result of several previous electro-fits. Administration of a grand mal reaction will invariably restore the patient to the previous level of improvement.

Confusion and some excitement is sometimes the result of an "organic" response in which marked memory disturbance has occurred due to excessive treatment. This reaction is often observed in the elderly patient after 3 or 4 treatments. It usually subsides spontaneously in 3 to 5 days and may be attenuated by the use of 5 to 10 mgs of Dexamyl B. I. D.

CHARLES BUCKMAN, M.D.
Kings Park, New York

A patient developed extreme confusion following A.C.-treatment, manifested by shouting, wailing and agitation.

Controlling him was difficult. Restraints, Sparine I.V., post-treatment, and barbiturates, pre- and post-treatment were without appreciable effect. We found we could control this violent confusion by developing the seizure with uni-directional current gently graded. I use a low enough current so that the seizure is not fully established until approximately 30 seconds of convulsive current flow has passed. It is evident that by avoiding spilling over of excessive electric convulsive dosage we can establish the therapeutic seizure and yet not irritate the hypersensitive areas of the brain which give rise to the confusion. In less sensitive patients we can use higher values of current and establish the seizure in shorter time, possibly 15 seconds without causing confusion. In those that do not normally show confusion we can use maximum doses of alternating current or uni-directional current without any problem. Current tolerance levels, low, medium or high, should be clinically established in the therapeutic regime.

LAWRENCE H. GAHAGAN, M.D.
New York City

I attempt to prevent or at least minimize post-treatment agitation and confusion by preliminary medication with sodium amytal (by mouth or parentally); sometimes it is necessary to give additional sodium amytal parentally soon after the seizure has subsided if the preliminary dose is insufficient.

A further consideration is to allow the patient to awaken naturally under "reassuring" conditions, for example, with lights on and a familiar person in the room, who speaks reassuringly to the patient. The patient is treated as though he were delirious. The recovery situation is designed to prevent the patient from being startled or frightened.

In certain excited or fearful patients, scopolamine hydrobromide 1.2 mg. (grain 1/50) may be given hypodermically at the time the barbiturate is administered.

ALFRED GALLINEK, M.D.
New York City

The agitation is, psychopathologically speaking, the result of the post-convulsive confusion. Many patients will be helped by pretreatment sodium amytal 0.4 gm p.o., 90 minutes prior to treatment. With this the patients will sleep for a considerable time after treatment. It is, however, not helpful in all patients. Some patients show the same confusion and agitation when waking one or two hours after electric shock therapy with sodium amytal as they may show when waking from an unmodified treatment. In these patients a profound experience of unfamiliarity and disconnection from past and future causes marked anxiety. There is no entirely satisfactory way of avoiding confusion and agitation in these patients. Confrontation with familiar faces, with relatives, at the time of awakening is of some help in restoring a sense of familiarity. Severe disturbed states of prolonged post treatment confusion can be broken up by intravenous administration of desoxyn-hydrochloride, ½ to 1 cc (10-20 mg.)

Just as with memory loss a lengthening of the intervals between treatments, particularly during

the second phase of the treatment program, also is helpful.

DAVID J. IMPASTATO, M.D.
New York City

Following an electroshock treatment a patient may become confused or agitated. The agitation is usually accompanied by confusion; but confusion need not be accompanied by agitation. I have found that agitated patients are liable to be suffering from paranoid delusions.

Confusion and agitation occur because the patient has received too much current too suddenly. These reactions are more common when A. C. apparatus delivers all the current in a fraction of a second, and usually causes an immediate or supramaximal convulsion. With unidirectional machines the current is delivered more slowly, in from 5 to 15 seconds, and the convulsions are of gradual onset or "threshold" convulsions without any resulting confusion.

LOTHAR B. KALINOWSKY, M.D.
New York City

Post-convulsive excitement is more frequent in neurotic patients than in psychotics. While I do not approve of premedication in electrically induced convulsions as it may add to the potential danger of the treatment, an intravenous barbiturate should be used in over-anxious neurotic patients. In general, if an excitement state follows the first treatment I give intravenous sodium amytal in preference to sodium pentothal because anesthesiologists tell me that sodium amytal is less dangerous than the fast acting pentothal. A recent fatality with ECT after pentothal in a young patient who had had many unpremedicated electric shocks, illustrates this point. The Anectine-petit mal-electroshock technic recommended by Impastato was also introduced because of the potential danger of pentothal. Unfortunately, it does not prevent the occurrence of post-convulsive excitements. In patients who react badly to premedication with barbiturates, the intravenous injection can be given immediately after the convulsion. Thorazine should not be used in acute excitement states because it may lead to cardio-vascular collapse.

JOACHIM LUWISCH, M.D.
New York City

My recommendation for post-convulsive confusion is an injection of sodium amytal varying in strength from 3¾ to 7½ grains given intravenously, immediately after the shock treatment.

I have found sodium amytal to be superior to sodium pentothal as the action of the latter is of shorter duration and may interfere with the functions of the respiratory center. This procedure also does away with the need of a second treatment in order to calm the patient.

T. R. ROBIE, M.D.
East Orange, N. J.

I have found that Thorazine intramuscularly in adequate dosage or Serpasil or Sparine will decrease or eliminate entirely the more extreme degrees of post-electric shock agitation. This treatment is specific for furor reactions because it will eliminate the extremes of hyperkinesis, assaultiveness and shouting, provided adequate dosage is given. The average case requires about 50 mg. of Thorazine and somewhat larger dosage of Sparine. One can estimate the dosage for subsequent treatments in accordance with the degree of attenuation secured in the first trial. Since it takes some time for tranquilizer medication to take effect intramuscularly, it should be administered just before the electroconvulsive treatment to be effective.

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Book Reviews

ALCOHOLISM, edited by George N. Thompson. Charles C. Thomas, Publ. $9.50. 548 pp.

This monograph on alcoholism is organized into eight parts and consists of outstanding contributions on all aspects of this major health problem. Its purpose was to provide a complete treatise of the most recent medical information on alcoholism for the many individuals and agencies interested in this serious problem.

The first section concerns the public health and social aspects of alcoholism, including as well historical, industrial, religious, legal and economic considerations. The author discusses the public programs for the care of alcoholics adopted by several states, particularly that of Virginia which is patterned after the medical care principles of the Research Council. He gives a summation of the concepts and principles involved in the development of public programs for the care of the alcoholic.

The second section of the book is devoted to the basic science aspects of the problem, with chapters on the pharmacology, pathology, and physiology. Here are discussed the metabolism of alcohol and its effects on the body, as well as the pharmacological action of drugs used in the treatment of alcoholism. The various tests to determine the blood alcohol levels and their use in legal proceedings is presented. Although generally thought to be a stimulant, it is pointed out that alcohol actually depresses synaptic transmission, an effect most striking on the cortical levels, thus disturbing the more highly integrated cerebral activities.

The third section discusses clinical aspects of alcoholism, with chapters on the internal medical, neurological and psychiatric facets of the disease. There is a final chapter on electroencephalography in alcoholism in which the author reports his findings in sixty patients who had EEG's before, during and after ingestion of alcohol. He gives brief summaries of twenty-two cases with accompanying EEG's, but does not recommend the routine use of alcohol as an activating agent for electroencephalography.

There is considerable overlapping and more repetition than would seem necessary. On the whole, it is a worthwhile presentation for physicians and other workers concerned with the alcohloic.

Chester F. Cullen, M.D.

EPILEPSY AND THE LAW by Roscoe L. Barrow and Howard D. Fabing, M.D. 177 pp. $5.50.

For centuries the epileptic patient has suffered from prejudices, superstitions and stigmata attached to the illness, and many of these have been incorporated in our laws, thus further handicapping the person with epilepsy. This book, written by a lawyer and a physician, represents a valiant attempt to bring the outmoded laws affecting the epileptic into line with present medical knowledge and management of the disease. They review the laws controlling the marriage and sterilization of the epileptic and demonstrate the genetic unsoundness of these laws, since modern medical knowledge holds that the genetic factor in epilepsy is insignificant and does not justify such legislation. The authors also point out that these laws, denying to the epileptic the right of marriage and the right of procreation, sacrifice strong moral and ethical values, not only for the epileptic, but also for the society which imposes them. It is encouraging that three states have recently amended their eugenic marriage laws and deleted the reference to "epileptics" in them.

The authors also discuss the laws concerning issuance of drivers' licenses to epileptics. Recognizing that medical control of seizures by anticonvulsants enables the controlled epileptic to operate a motor vehicle with raseonable safety, a number of states do grant licenses on the basis of control of the seizures. A seizure free period of one year is recommended as an adequate basis for determining whether a controlled epileptic is a safe driving risk.

Workmen's Compensation Laws, which unfairly treat the epileptic, are discussed. The authors show by reliable figures that epilepsy is an insignificant factor in the accident rate of employees. Recommendations are made regarding legislation that would adequately protect employers and encourage employment of the epileptic.

The authors clearly and concisely present their findings and offer specific recommendations for amendments in the laws to implement the great medical advances made in the control of this age-old, stigmatized disease. These changes would help to remove some of the stigma and aid in the rehabilitation of these persons. The work is well documented and replete with references.

Chester F. Cullen, M.D.

EDUCATING SPASTIC CHILDREN by F. Eleanor Schonell, M.A., Ph.D. Philosophical Library, Publishers. $6.00. 242 pp.

This is an authoritative little book written by one who has a rich background of experience with children afflicted with cerebral palsy. It was written for the purpose of providing information for all those concerned with the education, upbringing and general welfare of the cerebral palsied. The author discusses the nature and historical background of the disease, the testing of intelligence levels of these children and presents practical suggestions as to their education and psychological needs and the counsleling of their parents.

Most of their information was gained from her work in the Birmingham research project and the experiences of the special Carlson House School for Spastic Children. It is well written and a good guide for all concerned with these handicapped children.

Chester F. Cullen, M.D.

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"MYSOLINE" effectively controls grand mal and psychomotor seizures

Control of seizures was obtained in 57 per cent of 97 grand mal patients where "MYSOLINE" was used as initial therapy; an additional 22 per cent were improved.[1] In patients refractory to previous standard medication, Pence[2] obtained improvement to complete control in 70 per cent of cases. In his study, "MYSOLINE" was added to current medication and in some cases this was replaced by "MYSOLINE" alone. He observed that patients can usually remain under control without necessitating dosage increases above the established maintenance level. "Grand mal convulsions, psychomotor automatisms and focal motor convulsive disorders respond most readily to this drug."[3]

NOTABLY FREE FROM SERIOUS TOXIC EFFECTS

Urinalyses and blood counts during therapy failed to reveal any abnormalities.[2] When side reactions do occur, they are usually mild and transient and tend to disappear as therapy is continued.

"MYSOLINE"®

Brand of Primidone

in epilepsy

Supplied: 0.25 Gm. scored tablets, bottles of 100 and 1,000.

LITERATURE ON REQUEST

1. Livingston, S., and Petersen, D.: New England J. Med. 254:327 (Feb. 16) 1956.
2. Pence, L. M.: Texas State J. Med. 50:290 (May) 1954.
3. Berman, B. A.: Am. J. Psychiat. 112:541 (Jan.) 1956.

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"Mysoline" is available in the United States by arrangement with Imperial Chemical (Pharmaceuticals) Limited.

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